

“BUSINESS
SKETCHES
... IN ...
AMERICA.”



... By ...
E. W. T. RICHMOND.

Gas lighting

Reprinted from the JOURNAL OF
GAS LIGHTING, January 29th,
February 5th, 12th, and 19th, 1901.

*“Business Sketches
in America.”*

SOME METHODS . . .
WORTH EMULATING.

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EUSTON STATION, }
LONDON. }
“AU REVOIR”—LONDON STAFF—Oct. 20th, 1900.

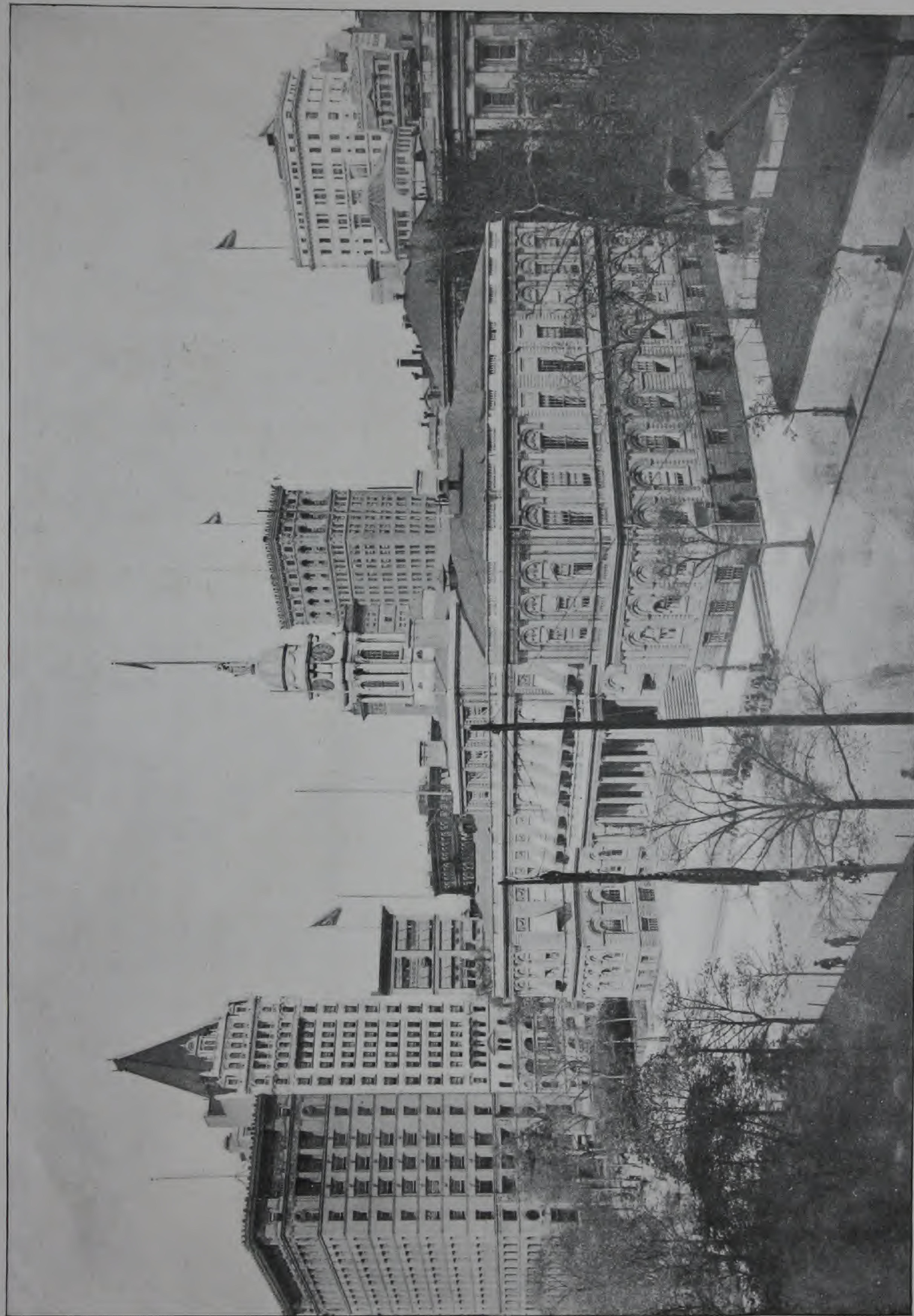


NEW YORK FROM ARRIVING STEAMER.

(SOME OF THESE TALL BUILDINGS ARE 20 STORIES HIGH AND UPWARDS.)



BROOKLYN SUSPENSION BRIDGE.



CITY HALL, NEW YORK.

Acknowledgments

The subjoined letters from President McKinley, President of the United States, and the Right Hon. Sir Wilfrid Laurier, Premier of the Dominion of Canada, have been received:—

EXECUTIVE MANSION,
WASHINGTON.

February 21, 1901.

My dear Sir:

I beg leave to acknowledge the receipt of your recent favor and to thank you in the President's behalf for your courtesy in calling attention to the article to which you refer.

Very truly yours,

Gal. Roosevelt
Secretary to the President.

Mr. F. W. T. Richmond,
132 Queen Victoria Street,
London, E.C., England.



Ottawa, 25th, Feb. 1901.

Dear Sir,

I have the honour to acknowledge the receipt of your favour of the 13th. instant, and of the copy of the "Journal of Gas Lighting", for which please accept my sincere thanks.

I have the honour to be,

Yours very sincerely,

Wilfrid Laurier

F. W. Richmond, Esq.
132 Queen Victoria St.
London, E.C.
Enc.



“BUSINESS SKETCHES IN AMERICA.”

SOME METHODS WORTH EMULATING

By E. W. T. RICHMOND.

[Reprinted from the JOURNAL OF GAS LIGHTING, &c.—Nos. 1968 to 1971.]

FIRST ARTICLE.

Jan. 29, 1901.

“ Much matter to be heard and learn’d.”

“ Give me leave to speak my mind.”
“ As You Like It,” Act, v.

AN INTRODUCTION AND AN ACKNOWLEDGMENT.

As I sit down to commence this series of articles on possible points of interest to the gas industry, gathered in America during a brief sojourn in that hospitable country at the close of last year, I feel somewhat appalled by the pile of notes, correspondence, and printed information that lies before me, all more or less bearing upon the subjects which I propose to introduce. But every note, letter, leaflet, or book, recalls to remembrance the unbounded cordiality and kindness with which I was received and treated here, there, and everywhere during my journeying over some three or four thousand miles in that great progressive country, and particularly at the hands of the American and Canadian gas profession. Though a stranger, yet the link which unites me with the English gas industry was sufficient to open the door and ensure a hearty reception wherever I went; and the consequent happiness, pleasure, and instruction which I derived, and which caused the days to pass all too quickly, “ are in my memory locked.”

A LITTLE REGRET. In a technical paper such as the “ JOURNAL,” the topics over which my pen may traverse are almost rigidly circumscribed. The magnificent sights I saw (some almost inspiring awe in their great natural splendour), the large tracts of virgin country, which open up a vista of illimitable development, the immensity of the work already accomplished, the stately buildings, the scenes of events which have helped to mould the land of our cousins into what it is at the present day, all set me longing to transgress the editorial rule. But I must forbear.

BY WAY OF PRE-
FACE—
WHERE WE EXCEL. In approaching the subjects with which I purpose dealing, I desire to say distinctly that I intend to carefully shun any expression of opinion on purely gas engineering or manufacturing questions; and the information touching thereon which I have to offer shall be imparted as I received it. I will with Othello—

“ Nothing extenuate, nor set down aught in malice.”

But on subjects affecting the branch of the industry with which I am more intimately acquainted, I may venture a little further afield. Without, however, being charged with presumptuousness, I think I may go to this extent—and I do so in the kindest spirit, and entirely as an interested, and I hope observant, onlooker—that I cannot concede to our American friends a pre-eminence in

their coal-gas manufacturing plant and financial arrangements over English methods. That we are certainly in the van in these respects is conceded by our Transatlantic relatives. The coal-gas plant in America is not by any means on a level with ours; and in the adoption of systems approved on this side, and known and employed for their economical working, American engineers are in arrear. But to the recent great International Congress, and to the opportunity which it gave to many of them to personally investigate in actual work the newest plant in this country, I look with confidence for a big and immediate step on the path of progress in this direction. In the works I visited, of inclined retorts there were none; and the operation of the stoking machinery which I saw impressed me as being infinitely inferior to that of the West and Arrol-Foulis types. These are two lines along which, I think, superior working might be achieved "over the way." Others might be mentioned, but I have already stepped too far across the bounds which I have set myself. The gas men of America, however, whom I had the pleasure of meeting will not, I am certain, allow themselves to long remain under the imputation of being backward in these regards.

WHAT WE MAY Having thus delivered myself in favour
LEARN. of my own country, I am impelled, by

what I saw unaided, and by the proofs which my good-natured and communicative friends brought to my notice, to turn round and confess that there are many of their methods which the managerial section of the gas industry at home could study and adopt with profit to their undertakings. I refer particularly to the commercial side of the gas business, and to the relations of the supplier and consumer. In the keenness of our American friends for securing new custom, I confess, with a feeling of humiliation, that we on this side are not their equals. Whether for lighting, cooking, heating, or motive power, they do not leave a stone unturned in order to obtain extended business. The beating of the big drum may be objectionable to the fastidious at home; but when big results follow, what argument can be advanced in opposition? If, in America, bold advertising, constant circularizing, and other ordinary methods do not have the desired effect, then personal interviews are sought, and these frequently reach the end aimed for where other courses have been tried and failed. If the first visit is not successful, the householder is left with the promise—

"Ere long I'll visit you again."

If, too, a man cannot be obtained for the trinity of the gas industry—lighting, cooking, and heating—then a pertinacious effort is made to obtain his adhesion to one of the three.

It is fully recognized in America that the expansion of the gas business is to be found in the fields of cooking and heating; and, so far so, that if a manufacturer of appliances for these purposes seeks to open up business relations with a gas manager, the first question the latter puts to his would-be supplier is "What amount of custom can you obtain for us?" And this, it seems to me, is a direction in which the gas supplier and the stove manufacturer can work together with mutual advantage quite as well at home as in America. But the mainspring to the opening up of their new gas consumption is advertisement in the daily press. Advertise! Advertise!! Advertise!!! is the leading idea of the gas manager; and where that is unsuccessful, then other means are brought into play to try to attain the wished-for end. But on this question of advertising more shall be said. Lost custom through lack of enterprise is a biting loss, for

"Grieves cry louder than advertisement."

I hope to include some interesting examples of advertisement from America. For the present, however, I leave the subject with the one remark that the great scheme of creation at the beginning of all things itself created the need for artificial light, but no need for day gas consumption. This must be cultivated; and how to cultivate it is well known and practised by our American friends.

VOYAGE AND FIRST What I have so far written must simply
DAYS IN NEW YORK. be taken in the light of an introduction; and now I do not think I can do better than give an account of what I saw and heard in connection with the gas industry from the commencement to the end of my

travels. The voyage to America, which began on Oct. 20, was taken in the good ship *Campania*; and "Profit Sharing" by Gilman (which has lately been extensively commented on in the "JOURNAL") was my chief study during smooth portions of the journey. I consider this a very fine and exhaustive work; and it should certainly be in the hands of, and diligently read by, all who have the welfare of their employees at heart.

Oct. 26 witnessed my arrival in New York; and one of the first things that struck me on opening the "New York Evening Post" was the New York Gas Company's advertisement respecting the advantages of gas cooking-stoves. During my stay in the premier city of the States, I called on many people connected with the industry. One of the first was Mr. A. C. Humphreys, who stands at the head of the American gas profession. He occupies the fifteenth floor of one of the twenty-storey "sky-scrappers" which bulk so large in American cities. Then I went on to Mr. Cunningham, of the "American Gaslight Journal." The offices of this paper seem to me to be a kind of Liberty Hall to the gas fraternity. Visitors, I noticed, walked in and out without any formal or ceremonious announcement, and appeared to make it quite a "house of call." I have also to acknowledge the kindness of Mr. E. C. Brown, the Editor of "Progressive Age," who, by introduction and advice, considerably assisted me.

THE CONSOLIDATED GAS COMPANY. To the Consolidated Gas Company of New York I must give an opening place, inasmuch as it was the first to come under investigation. This large concern (larger than the South Metropolitan, but smaller than the Gaslight and Coke Company) has been built up by the fusion of four Gas Companies: The Consolidated (which was as large as the other three combined), the New Amsterdam, the Standard, and the Mutual. The consolidation must have effected a great saving. All the Companies were at liberty to run pipes in each other's districts. The Consolidated Company practically had pipes all over New York, but the other Companies confined themselves to various districts; the result being that in many cases collectors and inspectors of the various Companies were going over the same ground, and many expenses of a like character were being duplicated and trebled through the competition which existed. The Consolidated, and all the other Gas Companies in New York, three years ago charged \$1.20 for their gas. A law was then passed bringing the price of gas down 5c. per year; until next year it will be the level dollar. Gas supplied through prepayment meters cannot be charged for at higher price than that delivered through the ordinary meters; and this, I consider, to some extent, accounts for the laxity displayed in pushing prepayment meters in New York. In other States, the same retarding influences obtain; and little is done compared with the development under our methods in Great Britain. Incidentally, it may be remarked, the illuminating power of the gas in the city is very high—from 26 to 27 candles.

COMPETITORS UNITED. It is interesting to note that the Consolidated Gas Company have absorbed the electric light concern. This has been a very far-reaching financial undertaking, and could only have been pulled through by such a captain of finance as the President of the Company, Mr. H. E. Gawtry, is acknowledged to be. His word is looked upon in Wall Street as his bond; and he has great influence in financial circles there.

PURCHASING AGENTS. The Assistant Secretary, Mr. L. B. Gawtry, the President's son, is the Purchasing Agent of the Company, and bids fair to follow in his father's footsteps. The Purchasing Agent is quite an institution in the States. Engineers recommend the purchase of various articles; and the Purchasing Agent looks into the prices and authorizes the purchase. Whether this dual control is advantageous or not in small companies, is a matter about which I am rather dubious.

SHARE TRANSFERS AND VALUES. I was initiated into the rapidity with which share transfers are executed on the other side, and informed of the great improvement in the financial standing of this Company. Fifteen years ago, their \$100 ordinary shares could have been purchased at \$80, whereas now they stand at \$190, yielding just over 5 per cent., in spite of the fact that the amalgamations have resulted in

a large amount of watered capital having to be provided, which, had it not been for competition, would have been unnecessary. This Company, in common with many others, publish no balance-sheets, as they fear it may invite competition.

Two Officials. Mr. A. Doane, the courteous and well-informed Secretary of the Company, who gave me the information in the foregoing paragraph, is known to several engineers on this side, to whom he has paid visits on some of his tours of investigation; and in Mr. Bradley, the Chief Engineer, I found a man whose opinion on gas matters is pregnant with strong common sense.

THE AMSTERDAM WORKS OF THE CONSOLIDATED COMPANY. It was with much regret that I could only find an opportunity of visiting one of the works of the Consolidated Company—viz., the "Amsterdam" station. Its attraction for me consisted in the fact that it is entirely devoted to the manufacture of water gas; while the other works distribute a mixture of which three parts are water gas. The New Amsterdam Company (which absorbed the Equitable Company) was formerly looked upon by the Consolidated Company as a concern from which they had no cause to fear trouble on the Island of Manhattan, which is the chief island, on which the business portion of the city is built; but the Amsterdam Company, with an eye to expansion, decided to drive a tunnel under the East River from Long Island, where their works were situated, to Manhattan. They went down 135 feet, and drove a tunnel half a mile long (most of it through solid rock), and ran two 36-inch pipes in the tunnel—the whole constituting a very fine piece of engineering



THE TUNNEL UNDER EAST RIVER.

work. The tunnel, as seen by the illustration, has a cast-iron lining, made by the Davis and Thomas Company, of Catasauqua, Pa. From midstream a branch supply was carried from the trunk mains to Blackwell's Island, a small island on which New York City has built its prison, asylum, and other public institutions. The branch pipe is a 6-inch one. The Municipality then agreed, under contract, to cease manufacturing gas, and to take their supply from the New Amsterdam Company at 92½c. (which equals 3s. 8d.) per 1000 cubic feet of 27-candle power. This was a fair paying price for the New Amsterdam Gas Company, and represented a big saving to the city.

The New Amsterdam works cover 5 acres; and the additions which have recently been made reflect great credit upon Mr. A. S. Miller, the Engineer. Their capacity is 13 million cubic feet per day; and the land and buildings are so arranged as to enable the production to be increased to 24 millions. The capital outlay on the works only totals to 2s. per 1000 cubic feet, which, at 4 per cent., represents about 1d. per 1000 cubic feet, which is very moderate. This, of course, does not include cost of mains, offices, &c.—nothing but the plant and land.

LABOUR SAVING IN
THE COUNTING-
HOUSE.

single items of the gas consumers' accounts, also totals them up. A receipting machine likewise excited admiration. This gives a receipt, enters the amounts paid, and adds them up at the end of the sheet, so that the day's work is totalled as it progresses. Another machine was seen addressing bills on a sort of band tape; and this in a gas office must be a great labour saver. A font of type is used to set up the customers' names on the bills. They are put into a band; and the names are printed one after the other with great rapidity.

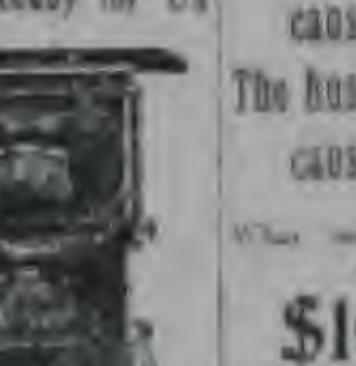
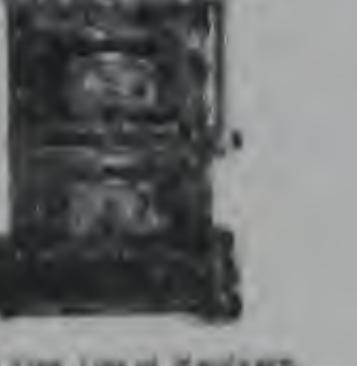
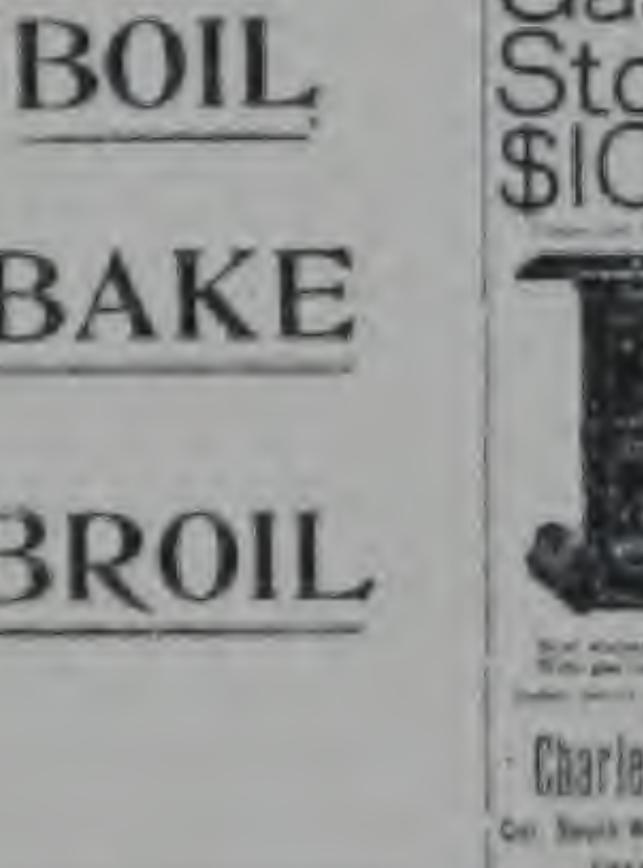
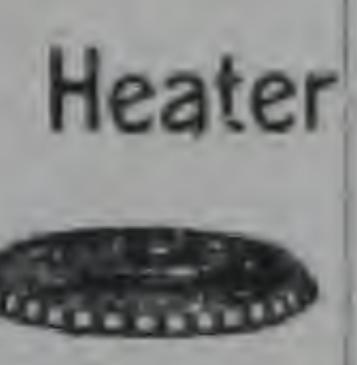
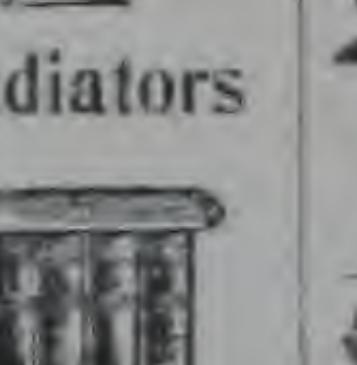
THE STOVE BUSINESS
IN NEW YORK.

At the offices of the Consolidated Company, samples of stoves were on view, displayed exactly the same as in many offices in this country; and some of the offices had special stove show-rooms, but they were not very attractive. Partly compen-

While at the Amsterdam works, I was much interested in a machine for totalling up bills, called the "Arithometer." This clever machine, while carrying out the

Trenton Times
Part Second
Pages 9 to 12
EIGHTEENTH YEAR
TRENTON, N.J., SATURDAY, AUGUST 18, 1894
ONE CENT

NOW Is the Time to Buy a Gas Range Then Use It All the Year.....

Gas Stoves \$10. Connected Free Ready for Use.  No Burn, Flame and Plenty of Heat. S. E. Kaulman, DEALER IN TRENTON, N.J.	Gas Stoves \$10.00 Connected Free Ready for Use.  In Spring Time or in Summer, In Winter or Fall You'll find your Gas Range The best friend of all. \$10.00 Buy This Friend. Lanning & Crook, DEALERS IN TRENTON, N.J.	GAS STOVES \$10 Connected Free Ready for Use.  The instantaneous water heater of today. The Eagle No. 1 which is the only Heater offered that is fitted with a safety pilot lamp. One all parts are interchangeable. A guarantee of 5 years with every Heater. W. H. White & Son, DEALERS IN TRENTON, N.J.	Gas Stoves \$10.00 Connected Free Ready for Use.  The cook likes it because it saves work. The wife likes it because it saves worry. The husband likes it because it saves money. \$10.00 Connected Ready to Light. A. C. Scott, DEALER IN TRENTON, N.J.	
Gas Stoves \$10.00 Connected Free Ready for Use.  Largest Gas Stove in the Manufacture. ROBERT MENDHAM, 222 S. Warren St.	BOIL BAKE BROIL 	BOIL BAKE BROIL 	Gas Stoves \$10.00  Charles W. Carl, DEALER IN TRENTON, N.J.	
The "Aerie" No. 15 Instantaneous Water Heater \$10.00  Dimensions: Diameter, 12 inches Height, 30 inches.	Gas Stoves \$10 Connected Free Ready for Use.  The Most Efficient Least Expensive On the Market. S. P. DUNHAM & CO. 8-10 State St. and R. Street St.	Sad Iron Heater  It's a Woman's Best Friend Buy One. F. G. Kautzsch & Co. 10 East State St.	Gas Stoves \$10.00 With all Conveniences Connected Radiators  Gas and Electric Appliance Co., 10 East State St.	Heating Stoves \$10.00 Connected \$8 

The Virtues of Gas For Fuel!

Always Ready in Health or Sickness, in SPRING, SUMMER, FALL OR WINTER.

THE FIRST PAGE OF THE TRENTON COMPANY'S FOUR-PAGE
ADVERTISEMENT.

sating for this were some striking coloured advertisements on the walls, pictorially illustrating the advantages of using gas-stoves. These cards, I understand, have also been prominently exhibited in the trams.

COLLECTION OF
ACCOUNTS.

It may be conveniently mentioned here that a custom of the country, and of most American Gas Companies, is to collect their accounts monthly, and in some cases weekly. This, again, is an impediment to the introduction of prepayment meters.

CHARLESTOWN GAS
COMPANY, SOUTH
CAROLINA.

informed me that, at Charlestown, stoves costing about 50s. are supplied at cost, and fixed free; piping up to 200 feet being supplied without charge. The price of gas there is about 5s. (or \$1.25 per 1000 cubic feet for day consumption, and \$1.60 for ordinary consumption).

A PROSPEROUS GAS- WORKS INVESTOR.

While in New York, I met the late Manager of this Company (Mr. J. T. Thomas), who is a native of Hyde, Cheshire. He informed me that, at Charlestown, stoves

supplied at cost, and fixed free; piping up to without charge. The price of gas there is 1000 cubic feet for day consumption, and (umption).

I also had the pleasure of interviewing, in New York, Mr. Macmillan, a gentleman who has amassed a large fortune in ten up gas-works, and developing them and

Hundreds of People Put in Gas Ranges Before the Canning Season. Why? Because They Could Regulate the Heat so Well, and When They Are Through It's Out.

* THE PROOF OF THE PUDDING IS USING A GAS STOVE *

THE FOURTH PAGE GIVING NAMES AND ADDRESSES OF SOME
OF THE STOVE USERS.

(The Second and Third Pages contain Lists of other users.)

selling them again. He now controls ten separate works; some being as large as Derby.

TRENTON'S ENTERPRISE AND SUCCESS. About two-thirds of the distance on the road to Philadelphia is the town of Trenton, with a population of 75,000 Enterprise and an active Manager have there produced some most remarkable results in the rapid development of the stove trade. The Company's first effort in this direction did not meet with the return that it deserved. A start was made by lending rent free, 300 stoves to big consumers; and in the following eleven months only 102 stoves were sold. The Engineer and General Manager (Mr. Frank D. Moses) was then given charge of this branch, and commenced to advertise freely; and something

novel in the way of a newspaper advertisement which emanated from him is here reproduced. The illustrations are two pages of a four-page newspaper supplement occupied completely by the Company. The principle they have adopted in cultivating business appears to be that if a thing is worth doing at all, it is worth doing well. To secure a big expansion, one must draw attention; and to attract attention, something on such a scale that it will be talked about must be done. The hint should be taken by the gas authorities at home. Who among them has ever issued such an advertisement locally as the Trenton folks? But let us see what happened in Trenton. Almost entirely—I might perhaps, by including personal canvass, go so far as to leave out the qualifying word, and say entirely as the result of this liberal policy in advertising, no less than 2600 stoves were actually disposed of in three months. This is the greatest output, in such a short period for a town of the size of Trenton, I have ever heard of; and I commend the result to the serious consideration of my friends at home. In addition to the liberal advertising and a generous distribution of literature, a show-room was opened, and dealers in the ironmongery line were offered a commission of 10 per cent. on any orders they could take. But the Gas Company did by far the largest business themselves. The results were, as shown, most remarkable, especially when one considers that, in this part of the States, anthracite coal can be obtained, broken to the size of beans, for \$4 per ton, which is equal to about 16s., and the best parlour coal for \$5.75. This coal burns beautifully; and when once lit can be kept constantly alight, by proper adjustment of

20th CENTURY FUEL

GAS

GAS

GAS

GAS

We take this opportunity to announce to our patrons that we have closed a contract with MR. FRANKLIN D. MOSES, of Trenton, N. J., to sell GAS STOVES and other appliances at cost price, and set up same free of cost to our consumers. Mr. Moses will fully demonstrate to the residents of Baltimore the benefit, comfort, and economy of gas as fuel.

Respectfully,
CONSOLIDATED GAS CO.

20th CENTURY FUEL

the dampers, for three or four months. However, the effect of this magnificent output of gas-stoves must have been a doubling of the gas consumption right away, as the Company had 100 per cent. increase next year. Mark this—100 per cent. increase!

A CURIOUS CONTRACT. The success of Mr. Moses at Trenton has secured for him some notoriety, and what will be considered here a very peculiar contract. The terms of the agreement are, in brief, that he has contracted with the Baltimore Gas Company to put out 20,000 stoves in twelve months under a penalty of \$10,000, if he fails. A conspicuous advertisement announcing this contract to the residents of Baltimore has appeared in the local press; and I have a specimen in the "Baltimore American," Jan. 6, 1901. It measures 17½ in. by 11 in.; and above is a condensed representation.

PHILADELPHIA AND THE U. G. I. COMPANY. New York I found was a vast source from which to draw pleasure and instruction; but fleeting time compelled me to be on the move. About a week after I first set foot on American soil, I found myself in Philadelphia. Striking as are the general features of this great city, the visitor who is identified with gas in other countries will be drawn to it by the fact

that it is the home of that magnificent enterprise the United Gas Improvement Company. It is truly a remarkable concern, and is apparently twice as large as the Imperial Continental and the European Gas Companies combined, with the most energetic and up-to-date management. Their offices comprise one large block of buildings in one of the main thoroughfares in Philadelphia, twelve stories high. They own about forty gas-works of various sizes, large and small, up and down America, and have, in addition, a lease for thirty years (granted in 1897) for the supply of gas to the city of Philadelphia. This is a notable lease, inasmuch as the Municipality previously ran the gas-works, but unsuccessfully; whereas the United Gas Improvement Company in three years have increased the number of consumers by 100,000, and the sales of coal and water gas to 4000 million cubic feet. They



OFFICES OF THE UNITED GAS IMPROVEMENT COMPANY.

have also undertaken to sell gas at \$1 per 1000 cubic feet for the first ten years, at 90c. for the second ten years, and at 80c. for the last ten years, in addition to which they give the Municipality 10 per cent. of the profits of the undertaking under their management. At the time the contract was leased, there was an immense amount of opposition; to-day, the advantages accruing from the arrangement are such that there would be no difficulty in renewing the contract. The Company owe their success in a large measure to the magnificent business capacity and organizing powers of Mr. Alexander C. Humphreys, who in 1885 became the General Superintendent of the Company, with ten gas-works to manage; and he left the Company in 1894 splendidly organized, and controlling and working over thirty different works in various parts of the States. Mr. Humphreys is known to many engineers on this side, but will be known to all

as the senior partner in the firm of Humphreys and Glasgow. Mr. Glasgow was frequently asked about. He has, in truth, left a wide circle of admiring friends among American gas men.

CHIEFS AMONG MEN. I was glad to make the acquaintance of Mr. Dolan, the President of this goliath concern; and instinctively I recognized that I was in the presence of a leader of men. His clear-cut features and the sense of reserve power with which he impressed me was quite invigorating. I found Mr. M'Kinley knew him well and favourably. Mr. Dolan is one of the largest shareholders in connection with gas concerns in the United States; and, in common with other Presidents, he puts in a daily attendance, and works continuously in the larger concerns of the Company. Some interest will be taken in the *personnel* of such a gigantic undertaking. An observer would be struck by the immense grasp of detail and power of concentration shown by the General Manager of the Company, Mr. Bodine. It is a wonder how his health stands the strain. Mr. Walton Clark, the General Superintendent, has given way under the pressure, and was in Europe recouping while I was in the States. I have during the last few days heard from him regretting that he missed seeing me.

GAS-STOVE BUSINESS. The United Gas Improvement Company are most energetic in pushing the sale of gas. They keep on trying. If they find they cannot get a consumer one week, they give him a rest, and try him again the next month. The Company evidently echo the Duke's words in "Measure for Measure:"

" Dear Sir, ere long I'll visit you again."

They select their makes of stoves; and at the present time they have six manufacturers on their list, from whom they purchase. I was interested to see the way this and other companies buy their stocks of stoves forward. They do not expect the makers to carry a stock sufficient to supply all the gas companies within two or three days, as companies at home do. They place an order early in the season for a quantity of stoves, which are either delivered right away, or got ready for the companies to their order. I was glad to learn also in Philadelphia of the system of lady inspectors or lady canvassers; it is greatly in favour.

PUBLIC AND OTHER LIGHTING. The United Gas Improvement Company also control the Welsbach Incandescent Company of the United States. Under the contract of the former, certain gas lighting required by the city is furnished. Some of the streets are lighted by gas with open flame burners; some by the Welsbach Street Lighting Company of America, who have an exclusive contract with the Welsbach Lighting Company for their apparatus for street lighting only; some by the Pennsylvania Globe Gas-Light Company with gasoline or coal oil products; and some by electricity. There are four electric light companies; and it is understood, while not positively denied, that the city is divided into districts, each one of the electric light companies operating a certain area. It is rather a remarkable coincidence that their bid for public lighting, per lamp per year, is the same to the cent. For certain consumers, dwelling-houses, shops, manufacturing and other indoor lighting, there are about 125,000 meters set, with an average of 5 lights per meter. The Welsbach Lighting Company do a very large business in private residences, stores, shops, &c. Their number of customers in the city, I am informed, is about 300,000. As already stated, the price charged for gas in the city is fixed by ordinance at \$1 per 1000 cubic feet; while the street arc lights cost about 23½c. per light per night.

A FRIEND OLD AND NEW. While in Philadelphia, I also had the privilege of greeting Mr. Shelton, whose methods of supplying gas under high pressure to townships at long distances from the manufacturing base has received an acknowledgment on this side, and has created considerable interest. I was also glad to make the acquaintance of the Managing Director of the American Gaslight Company, Mr. George G. Ramsdell. This Company is more interested in the development of coal-gas undertakings than water-gas. These smaller Companies do not approach in magnitude the United Gas Improvement Company; but they have some resemblance to our British Gaslight and Danish Gas Companies.

MR. A. C. HUMPHREYS AND HIS WORK. Of Mr. Humphreys, with whom I had the privilege of frequent intercourse during a portion of my stay in America, I could, did I not fear that he would himself regard it as fulsome, write a great deal. In character, in charm of manner and goodness of heart, in the eminence which he has won in gas engineering, and in the position which he holds in the affections and confidence of the American gas profession, he is the counterpart of two at least of our gas engineering leaders at home. It was with the utmost regret that the United Gas Improvement Company lost his services in 1894; but their loss was the gain of others. His time and his abilities have since then been largely devoted to consultation work; and many undertakings have profited thereby. On his retirement from the position he had held with so much honour, an article appeared in "Light, Heat, and Power" which evidenced the copiousness of the appreciation of Mr. Humphreys in professional circles. Happy must be the man who can attain such a position in the estimation and affections of his personal and business friends!

There can be no objection to my reproducing here of what has already been published in America; and therefore I cannot refrain from giving the following extract from among much else contained in the paper mentioned:—

The retirement of Mr. A. C. Humphreys from the position in which the gas fraternity has grown into knowledge of him, as engineer and man, needs more than passing notice. It is not the ordinary retirement of a well-known official from active business cares, but rather the laying down of a life-work; for into the ten years which Mr. Humphreys has spent in the service of his Company, he has compressed more hard work and energy than the average engineer would expend in his generation, and the result of this is shown in the system which he leaves behind him, complete with every thread in exact place in the network—a proud masterpiece of executive skill, and the use of brains in management. If Mr. Humphreys' active life were to end to-day, he could be justly proud of the record he has made; but years and paths lie before him, and from the past we are justified in gauging the future. Mr. Humphreys has work before him which will test his abilities, and develop his strength, in lines other than those in which he has so long held leadership.

Then follows a statement as to the development of the Lowe water-gas process from the state of possibilities into that of achievements, which had been wrought through Mr. Humphreys' work. I ask no pardon for quoting also the following passages which appear in a resolution passed by a meeting of superintendents, engineers, and other employees of the United Gas Improvement Company after hearing the announcement of the retirement of their chief. Heartfelt regret was expressed, and then came the words—

A conscientious worker, rarely skilled in his profession, indefatigable, and earnest in purpose—he, more largely than has any one other person, has been the factor that has brought the United Gas Improvement Company to its present enviable position in the gas world to a point wherein its integrity, rank, and purpose is recognized, and where connection with it is an honour to every man of us here assembled. But while we recognize the business ability of Mr. Humphreys, there is yet a deeper and a sweeter attraction that draws us all to him, and that makes the pain of losing him the greater; and that is his integrity, his individuality, his personality, and his magnetism as a man.

Such a panegyric from one's colleagues, in phrase and expression which reveals a deep sincerity, must be gratifying to any man. What was then said of him and what I have quoted, is, I found from personal communion in private life and from mingling with gas men, as true to-day as it was in 1894, and perhaps in even greater measure. Mr. Humphreys was born in Edinburgh on March 30, 1851, and with his family he went to America in the fall of 1859. His entry into the gas profession was made at the age of 21; and eight-and-twenty years later (and before) he is the honoured and recognized leader of the American gas profession. May he long live to hold the position! His career and his place justify this lengthened notice; and I now leave him with Queen Margaret's remark—

"Humphrey is no little man in England."

² "Henry VI., Act 3, sc. 1.

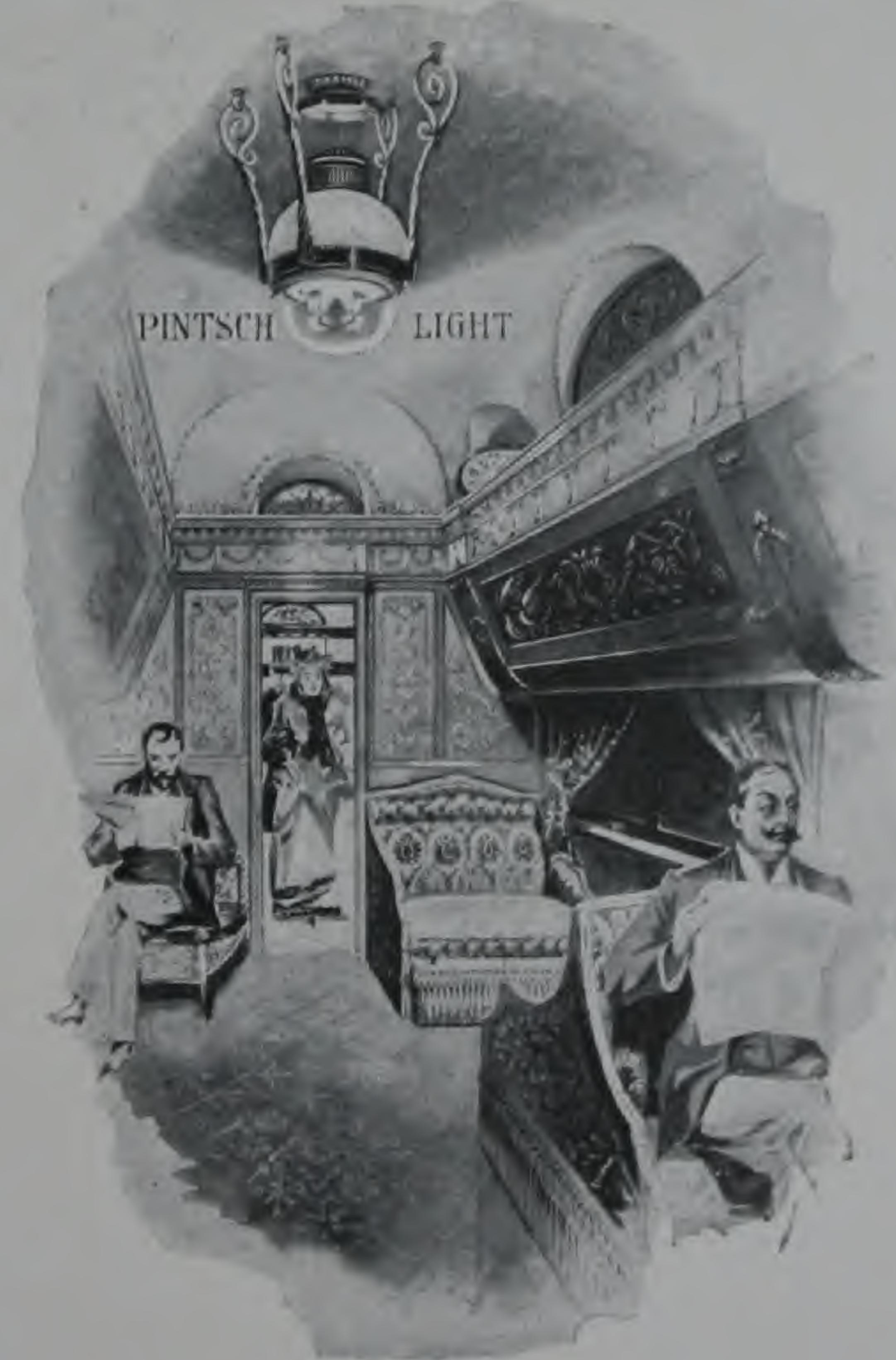
SECOND ARTICLE.

Feb. 5, 1901.

" And therefore as a stranger give it welcome:
 There are more things in Heaven and Earth, Horatio,
 Than are dreamt of in your philosophy."

" Hamlet," Act I., Sc. 5.

PINTSCH OIL GAS SYSTEM. The transition from Mr. Humphreys to the Pintsch lighting system (in which I became considerably interested, partly owing to the large amount of railway travelling which I accomplished) is not so great as readers who are not acquainted with one fact would imagine. In the fall of 1881, Mr. Humphreys



accepted the position of Chief Engineer to the Pintsch Lighting Company, in which appointment he remained between three and four years, finally resigning because those who were controlling the Company were not willing to work along the liberal lines necessary to the proper development of the business. The information given hereafter, manifestly shows that the Company early saw, after his secession, the wisdom of Mr. Humphreys' views, and entered upon a broader policy. Curiously, the Pintsch Company's present Engineer, Mr. H. Dixon (to whom I am indebted for much of the information respecting this Company), was in 1877-81 a classmate of Mr. Humphreys at the Stevens Institute of Technology.

The Pintsch Company have works in various parts of the country, and sell the gas in cylinders to the railway companies. The gas (which is produced from crude petroleum) is compressed to 150 lbs. pressure, and has an illuminating efficiency of 11 candles per cubic foot. The standard price is $\frac{1}{2}$ c. per cubic foot, which equals \$5 per 1000 cubic feet. In the Company's office, there is an interesting comparative installation showing the ordinary city gas under pressure and the Pintsch gas; and a very satisfactory method of testing the relative efficiencies is thus provided. During my frequent night railway journeys, I had ample opportunity of judging of the effect of the system for lighting the cars; and I am enabled, by the courtesy of the Company, to give an



illustration showing its use in the luxuriously appointed cars of the American lines. There is a warmth and richness about the light which cannot be approached by the electric light, besides being infinitely better for the eyes to read by.

The following is a graphic illustration of the progress made in the application of the Pintsch system on the railway roads of the world:—

Year. Cars,

1883—11,422	—
1885—17,600	—
1887—26,100	—
1889—35,096	—
1891—45,300	—
1893—54,175	—
1895—64,800	—
1898—85,600	—



COOKING ON RAILWAY
CARS.

With a studious consideration for the comfort of passengers on the great American railroads, the management of several

have applied the Pintsch gas-range to their dining buffet cars; and this has proved a no mean factor in the making of contented travellers, by supplying them with hot, satisfying meals. The Safety Car Heating and Lighting Company issues a neat little pamphlet on the subject, which furnishes information as to the popularity of the cooking arrangements on this system. The New York Central's Empire State Express (which is the fastest long-distance train in the world) is an example; the orders for steaks, chops, &c., amounting on this one train alone to several thousands in the course of a year.

THE WORLD-WIDE USE
OF PINTSCH GAS.

After the foregoing was written, I received some additional information regarding the Pintsch system of lighting. These new statistics are extremely interesting, as they show how the system has established for itself a name and a home in every quarter of the globe, and the extent. The statement gives the equipments of the system up to the end of 1899.

	Cars.	Locomotives.	Gas-Works.	Buoys and Beacons.
Germany	36,305	.. 3,784	.. 71	.. 98
Denmark	45	.. ..	3	.. 21
England	18,290	.. 18	.. 87	.. 236
France	5,425	.. ..	22	.. 238
Holland	3,166	.. 114	.. 9	.. 60
Italy	1,528	.. ..	4	.. 15
Switzerland	380	.. 9	.. 1	.. ..
Austria	3,211	.. ..	10	.. 1
Russia	2,275	.. 57	.. 13	.. 13
Sweden	475	.. 8	.. 4	.. 2
Serbia	154	.. ..	.. ..	.. ..
Bulgaria	33	.. ..	1	.. ..
Turkey	103	.. ..	.. ..	.. ..
Egypt	2	.. ..	3	.. 112
Canada	49	.. ..	2	.. 46
Brazil	974	.. 31	.. 1	.. 31
Argentine	1,041	.. ..	10	.. 2
Chili	46	.. ..	1	.. ..
India	7,744	.. ..	10	.. ..
Australia	2,053	.. ..	3	.. 29
United States	14,883	.. ..	51	.. 134
Total	98,182	.. 4,021	.. 306	.. 1,038
Increase for the year	7,292	.. 367	.. 3	.. 146

I have also obtained a list of the railroad cars, buoys, &c., in the United States and Canada equipped up to Jan. 1; but it is too extensive for publication. It shows that the number of cars lighted is 16,147; buoys, 136; beacons, 6; tenders, 4; and steamboats and ferryboats, 33. For all these figures, I am indebted to the Safety Car Heating and Lighting Company, of New York.

A LONG JOURNEY AND
NOTES BY THE WAY.

Returning from Philadelphia to New York, two or three days were again spent in that city in (among other matters) preparing for the long journey which I had mapped out for myself—taking in Baltimore, Washington, Pittsburgh, Cleveland, Dayton, Cincinnati, Chicago, Detroit, Buffalo, Niagara Falls, Hamilton, Toronto, Ottawa, Montreal, Quebec, Boston, and back again to New York, and absorbing the last 23 days of November. I found generally, that the vitality, resources, and accumulating wealth of the States and cities through which I passed are enormous. During the journey, I made copious notes on the gas affairs of the cities visited, and present them here as I collected them.

BALTIMORE.

Baltimore is for America a steady-going city, somewhat similar to Liverpool, is situated at the head of the Chesapeake Bay, and is a centre of the oyster-dredging industry. I do not think very much of its streets, nor of its public lighting, which is chiefly done by arc electric lamps. But a change is imminent, as I understand the Welsbach Company are about to enter into a large lighting contract.

THE GAS COMPANY
REJUVENIZED.

There have been some recent changes in the Gas Company. Changes, I find, are effected more drastically in America than here. Some of the shareholders felt that more enterprise was wanted in developing day consumption; and thereupon they took

steps to secure the fulfilment of their wishes. About 40 per cent. of the shares were handed over to the control of one gentleman, who proceeded to suggest the entire reconstruction of the Company's Board of Directors, with the result that he himself was drafted on to the Executive Committee; and the day of push and progress has dawned in Baltimore.

**GAS COOKING THE
GOAL.**

In my first article, I gave a little information about the vigorous steps that are now being taken to develop the use of gas for cooking; and, as I then mentioned, the very man who boomed Trenton (Mr. Moses) was offered by the Directors, and accepted, the superintendence of the development of this business.

**PAYMENT BY
RESULTS.**

Mr. Moses is to be paid on the results he achieves by his keenness in pushing the gas-stove business; and the question has often occurred to me, Why cannot gas directors and committees on this side initiate some system by which their managers should be paid by results?—say, by a moderate salary and a commission



A STREET GAS EXPLOSION IN BALTIMORE.

on profits? What a field for reward, according to merit, would be opened up to many managers, who are now eating their hearts out, chained to old customs by precedents, with boards of directors who fail to recognize the opportunities they are missing. I could name a score or more of such men off-hand who would, under such changed conditions, get their chance, but who are now chafing under their restrictions. But at the same time, when all the shortcomings of the Directors are allowed for, there are (I cannot help feeling) many Boards who would frequently move faster if only properly coached by their engineers and managers. Many engineers who are fearing the introduction of the electric light or the loss of some big customer, like to keep the fact of increased consumption within reach up their sleeve, waiting until some necessity arises for producing their trump card. Surely it is an error not to make the most of the present opportunities, and let the future, with its possible losses or competitions, take

care of itself. I should like to see emblazoned on the walls of all Board and Committee Rooms the words of Brutus—

“ There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune.

* * * * *
We must take the current when it serves,
Or lose our ventures.” “ Julius Cæsar,” Act IV., Sc. 3.

A STREET
EXPLOSION.

On the evening of the day that I reached Baltimore, a very serious street explosion occurred. It arose from the sinking of a gas-main, and the consequent severing of service connections; the primary cause of the accident being the relaying of a water-main, and the subsequent subsidence of the soil. The result of the explosion was remarkable, as will be partly seen from the accompanying photograph. The culverts and streets were torn up at intervals for some three-quarters of a mile; and the windows of the houses and shops were entirely shattered—many of them being boarded up when I visited the scene. Fortunately, no lives were lost; but a few persons were, I learned, injured by the falling *débris*.

A WELL-KNOWN
GERMAN SAVANT.

That a visit of a leader of the European gas industry is highly appreciated by American gas men was impressed upon me by the fact that, at one works I called at about this stage of my journey, a visit paid by Herr von Oechelhaeuser so far back as the time of the Chicago World's Fair was mentioned to me in a manner which revealed the delight the reminiscence afforded the speaker. Among the works which had the pleasure of receiving Herr Oechelhaeuser were New York, Cleveland, Chicago, Buffalo, &c. His visit, in fact, is regarded as quite an event; and I think this shows that few European gas engineers of note have visited American works. However, the strong and pregnant interest that is being manifested on all hands in water gas will doubtless induce many engineers to spare the necessary month or six weeks in viewing some of the works of the West. Such a journey (I feel I can now speak with some little authority) would not be wasted.

WASHINGTON GAS. At Washington I found that the price of gas is \$1.10; and the Company have only 50 prepayment meters in use. Stoves are sold at a profit of 10 to 15 per cent. An exhibition is held by the Company every year or alternate years. Last year they commenced one for three weeks; but it was so successful that they extended it to six. By the way, the American Companies are in the habit of paying the expenses of these exhibitions; and the gas-stove makers only provide the exhibits.

MR. M'KINLEY. Just for an instant, I must turn aside from gas matters to mention that I had the privilege of an interview with the President, Mr. M'Kinley, while in Washington. Through the kind offices of a friend, my card (with others) was sent in direct to the great man. The little party were only kept waiting for a few minutes before he sent for us. He was most affable, and conversed on topics of current interest with avidity. Congratulating him on his election, he said he felt very sincerely his responsibilities with such a large constituency as 75 millions of people. The President is of medium height, and thickly set, with something of Mr. Joseph Hepworth's ease of manner, and not unlike him in stamp of figure, but of larger build.

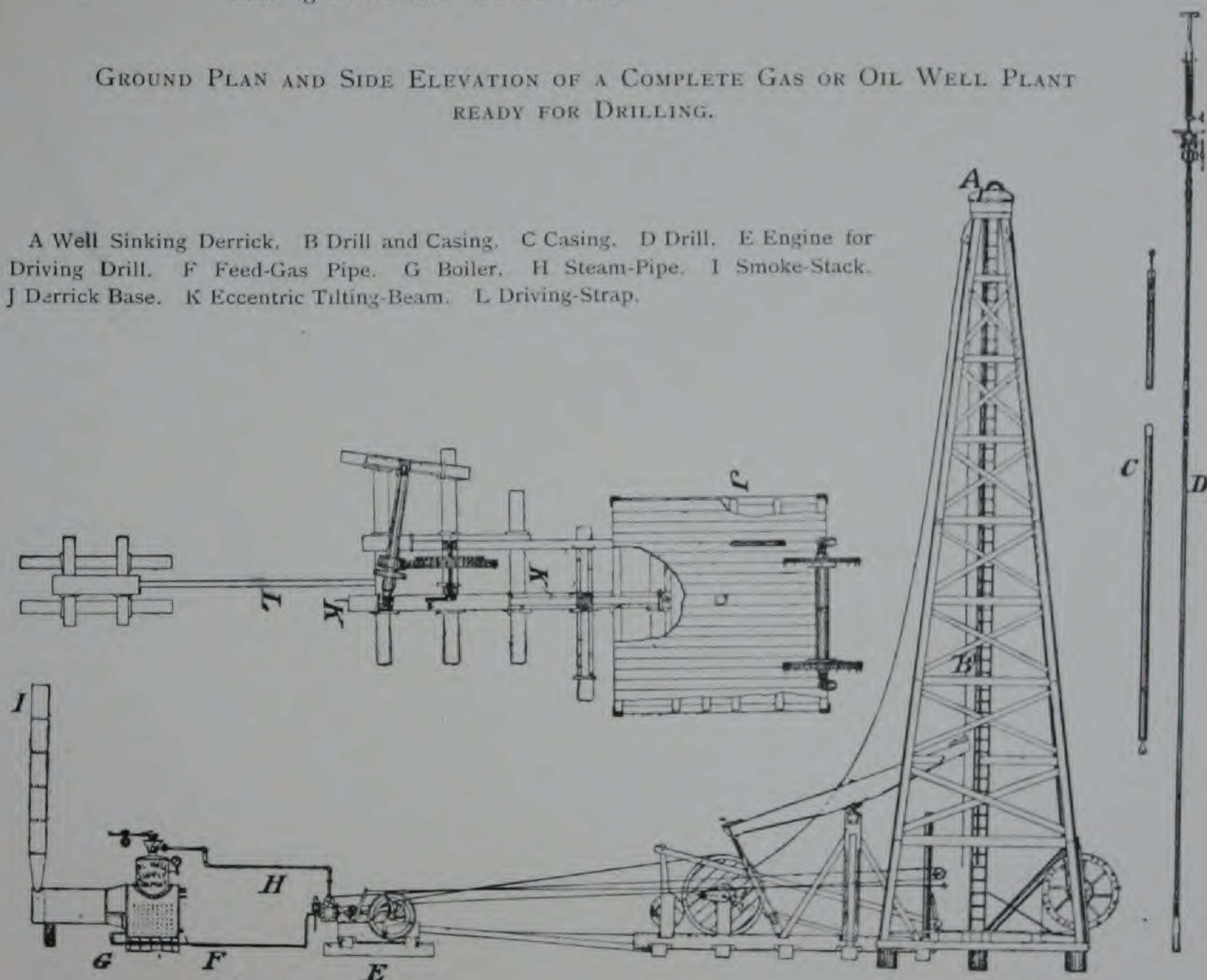
PITTSBURGH GAS. The next city visited was Pittsburgh; and the feature of its gas service is the natural gas, which is distributed to ordinary consumers at 25 c. per 1000 cubic feet. The manufactured gas is composed of 25 per cent. water gas, and 75 per cent. coal gas; and it is supplied at \$1 per 1000 cubic feet for lighting only. Almost all the cooking and heating is done by natural gas, which is contrary to what I found in Detroit later in my journey. The Company supplying manufactured gas also own the natural gas supply, which is piped into the town from sources 100 miles away. They also control the electric light and the United Electric Car-Traction Company, and light the streets entirely by electricity.

MESSRS. YOUNG FROM
BRITAIN TO PITTS-
BURGH.

The General Manager of the Pittsburgh Company, Mr. R. Young, is a Britisher, hailing from Falkirk, which he left 35 years ago. His brother, Mr. John Young (who is Manager of the Alleghany Natural Gas Company), left Falkirk for Hawick, and thence he passed in turn to Stoke, Hull, and Sheffield—finally stepping into Pittsburgh some 24 years ago. Mr. John Young, of Norwich, is the son of the latter and nephew of the former, and was for some time a resident Gas Engineer in the United States; and, like the writer, although he sees many things which might be improved in his native country, "with all its faults he loves it best."

ALLEGHANY GAS. The Alleghany Natural Gas Company supply a district with a population of about 120,000, and is controlled by the Pittsburgh Gas Company. Natural gas is distributed at as low as 10 c. per 1000 cubic feet for heating boilers and furnace work.

GROUND PLAN AND SIDE ELEVATION OF A COMPLETE GAS OR OIL WELL PLANT
READY FOR DRILLING.



NATURAL GAS. Frequently the mains and services of the natural and manufactured gas run side by side. While the natural gas is of 8-candle power for lighting, the manufactured gas is of 20-candle power. The former has a thermal efficiency of about 700 units per 1000 cubic feet; and it suits incandescent burners splendidly. Less gas is used, at a smaller cost, and more light is obtained. If it were not for the uncertainty of the continuation of the supply of natural gas, it would be even a more formidable opponent than it is. It is used very extravagantly, and its cost lies chiefly in the enormous length of mains that have to be run for its conveyance. It is frequently necessary to sink wells 1600 to 2000 feet deep to tap the gas, "when it is far

THE GAS WELLS. into the bowels of the land;" and they sometimes meet with a rock pressure varying from 50 lbs. to 1100 lbs. The Pittsburgh Company have 385 different wells tapped, varying from 50 lbs. pressure at the initial point to 900 lbs. The cost of sinking these wells is about £1000

sterling each. It is this cost, along with the mains—as before mentioned—that prevents the exploitation of natural gas by the general public. One of the sources of supply of the Pittsburgh Company is the Virginia Wells, which are 90 miles away; and they may be taken as a fair average sample. The gas starts at a pressure of 260 lbs., and loses its force to the extent of 250 lbs. by the time it reaches Pittsburgh—arriving there with a pressure of 10 lbs., or nearly 2800-tenths. This, of course, has again to be reduced to a pressure for the consumer of about 2 oz., or (say) 35-tenths.

The States of Pennsylvania, Ohio, and Indiana are the great natural-gas producing States; oil and gas being found side by side. There are also similar fields in Canada. The invariable rule is that wherever the wells are discovered, the mains are run to the nearest large town, being tapped *en route* to supply any smaller districts. The accompanying illustration, as explained, is a side elevation and ground plan of a complete outfit ready for drilling oil or gas wells.

The population of Pittsburgh is 350,000; and the Gas Company supply Alleghany, with a population of about 120,000. There is one small Gas Company on the south side not incorporated with them; selling natural gas at 25 c. per 1000 cubic feet, and drawing their supply from Ohio and Indiana—the nearest well being 100 miles away. Only a few slot meters are in use—the natural gas supply having acted as a deterrent to their adoption. For the past ten years, a dividend of 7 and 8 per cent. has been paid.

The Pittsburgh Company sell 100 million cubic feet of natural gas per day. This means a revenue, at the prices charged, of about £1,500,000 per annum for natural gas. While they sell 100 million cubic feet of natural gas, they only sell 2 millions of manufactured gas (fifty times as much natural gas as manufactured); but, spite of this, they have 20,000 consumers using their illuminating gas. They have a holder for the storage of 5 million cubic feet of natural gas for maintaining uniformity of supply. It was erected by Mr. John Young, in 1899, is the largest holder in the States, and thus far, I believe, the only natural-gas holder.

SURFACE COAL. Coal outcrops here; and it is an absolute fact that people are known to pick up pieces of coal from their gardens and burn it. This, as Isabella says, in "Measure for Measure," is

"As true as it is strange."

HOISTS. I also observed here that the hoists are very good. The automatic opening and closing of the doors to various floors in works' hoists are simple and safe. The gate rises as the lift comes to the floor, and descends as the lift leaves it; the action being vertical—portcullis fashion.

VARYING WEIGHTS AND MEASURES. The American weights and measures are similar to ours; but perhaps rather more confusing, as the ton at Pittsburgh means 2000 lbs., whereas in the Eastern States it means 2240 lbs.

GAS-BOILERS. About 80 per cent. of the gas consumption in Pittsburgh is used for steam-boilers; and the large works there run entirely with natural gas, at a charge of 10 c. (or 5d.) per 1000 cubic feet. The day before I was in Pittsburgh, they had sold 125 million cubic feet of natural gas in 24 hours.

LIGHTING QUALITIES OF THE TWO GASES. As an experiment, two 5 feet burners, one supplied with natural gas and the other with ordinary gas, were fitted up. The light from the natural gas (consisting of marsh gas, CH_4) was very poor; but, when the gases were turned on to a Welsbach burner, the advantage, if anything, was, it appeared to me, with the natural gas.

COIN METERS. In Pittsburgh, there are 9000 prepayment meters in use; and this, I may say, is about the best record in this line of business that I met with.

EXPLOSIONS. There was an explosion with natural gas through carelessness in connecting up with a piece of india-rubber tube the day I was in Pittsburgh. I seemed to be in the way of explosions, having, as already mentioned, had a similar experience the day I was in Baltimore; the explosion

there, as stated, arising through the sinking of the gas-pipes through excavations for laying water-mains.

NOVEL POINTS FROM
CLEVELAND. In Cleveland (which has a population of 250,000) I found there were 25,000 gas

consumers. Manufactured gas, chiefly coal gas, is supplied; water gas being used as a stand-by. The gas has an illuminating power of 18 candles; and the charge is 75 c. This Company are also very enterprising in their methods of extending business and building up day consumption. They advertise stoves, and fix them free from the meter, for three months in the year. They do this for one particular portion of the year for the purpose of pushing trade, and helping folks to make up their minds quickly. In the short space of three months last year, by means of their special advertising, the Company fixed no less than 2000 stoves.

PUBLIC LIGHTING. In regard to the public lighting of Cleveland, the trunk lines leading out of the city are lighted with arc electric lamps; and the balance of the city, so far as the gas-mains extend, is lighted with ordinary flat-flame burners. Portions not reached by the mains are lighted by Welsbach burners, supplied with gasoline. A number of the streets in the city have been lighted for some time by Welsbach burners with great success. They also light and provide gas for the lamps free; and this means an expense to them of \$15,000, or £3000 per annum. In other words, they make the Municipality an annual present of this sum. The Company have also agreed to pay the city 6½ per cent. on the profits made, for a concession of ten years. This is, I believe, the longest term that any of the States are able to grant a concession for at one time—an exception being the Philadelphia concession to which I have previously referred. Against this, the Company make whatever profits they can. If they can pay 50 per cent. dividend, they are at liberty to do so. The Company, in fact, promise with the Roman General Cominius, in "Coriolanus," that the town

"Shall divide in all with us."

THIRD ARTICLE.

Feb. 12, 1901.

"I rather would entreat thy company,
To see the wonders of the world abroad."

"Two Gentlemen of Verona," Act I., Sc. 1.

THE LESSON OF DAYTON.

Quitting Cleveland, I came to Dayton, and there I had one of the most fascinating experiences of the whole of my journey—an experience which comes well within the scope of the "JOURNAL," and which I feel confident will appeal to, and possess interest for, all employers of labour. With the one remark that the manufactured gas of Dayton is of an illuminating power of 21 candles, and is distributed at 85 c. per 1000 cubic feet, I will at once turn to the marvellous organization I saw there.

I have always held, and my visit to Dayton has considerably strengthened my view, that a wise solicitude for one's employees is about the best fertilizer that one can have for a business enterprise. But a higher motive than that should influence the regard which an employer should possess for the well-being of those over whom destiny has placed him. It is a duty that such regard should be exercised—it is a duty imposed by the governing position in which the employer is placed; and there should be no avoidable breach or failure in the performance of that duty. I have no sympathy with those who, to escape from their trust, or to endeavour to screen from the eyes of their fellows their indifference to it or its violation, say "a commercial undertaking is



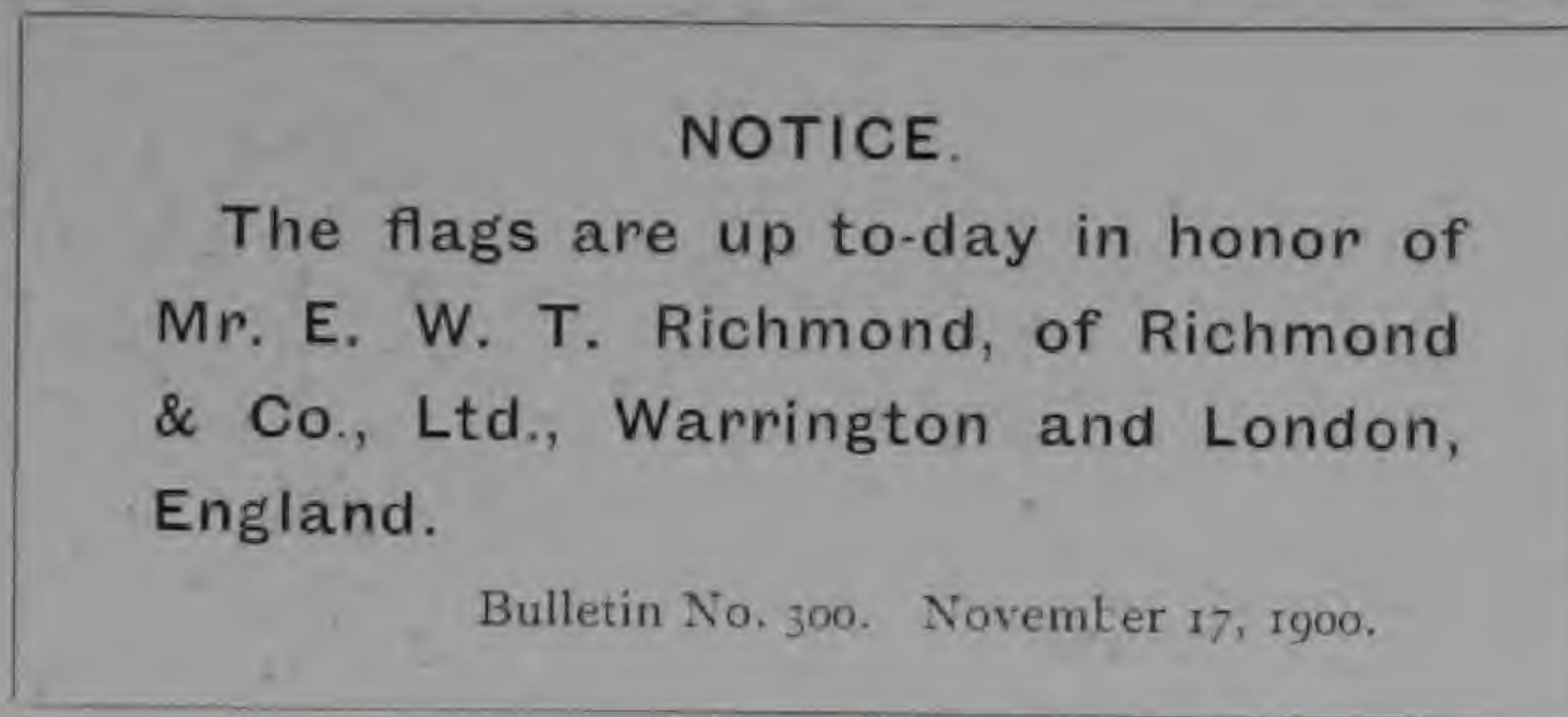
FACTORY OF THE NATIONAL CASH REGISTER
COMPANY, DAYTON, OHIO.

not a philanthropic society." The people whom we employ are of our flesh and blood, and they are swayed by the same feelings and emotions; and anything that an employer can prudently do for them to lighten their lives ought to be done, aye and must be done if his natural and moral obligations are rightly considered. In our small way we have endeavoured, in the business with which my name is associated, to do something to bring comfort and pleasure to those employed; and it has brought its reward. But what we have done is small compared with many companies and firms in the country—notably the South Metropolitan Gas Company, Messrs. Cadbury, and Messrs. Lever Brothers.

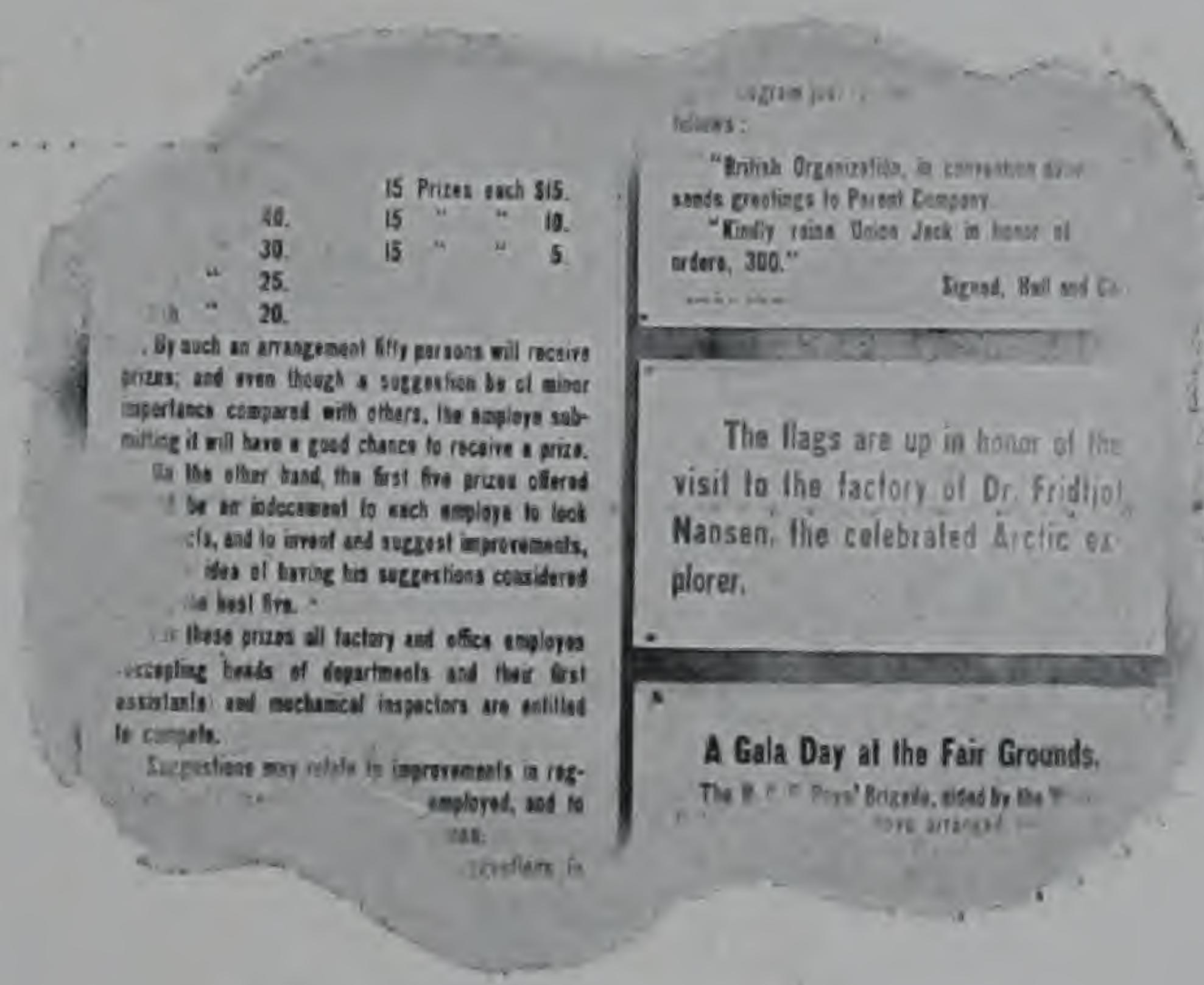
DAYTON METHODS OF MAKING WORKPEOPLE COMFORTABLE.

But I have been digressing, and must return to Dayton, where is situated the National Cash Register Company's factory, and it is, without any perversion of the truth, appropriately styled "the Model Factory of the World." Visitors are always welcome, and those who endeavour to do something for their employees over and above the question of mere wages, are doubly welcome. So much so, that on the occasion of my visit, on Nov. 17 last, I was heartily welcomed to luncheon with the staff, and for the first time in my life (and pos-

sibly for the last) flags were hoisted in my honour. Even this little act affords interest to the workpeople, who are informed as to who their visitor is by the issue of a printed bulletin, which, in my case, was as follows:—



The visit to this factory proved, I can truthfully say, one of the greatest object-lessons of my life; and if I had seen nothing else in the States, I should not have counted my trip to America a loss. The works are immense; the floor-space alone being equivalent to $13\frac{1}{2}$ acres. The capital is 5 million dollars; and the employees number 2400, to which figure it has grown since 1884, when there were only 14 hands. It is, however, of the employees, and what is done for them, that I chiefly wish to write. The present system of management was adopted by the Company in 1894; and the features which make it prominent, and which do so much in "character-building" have been developed during the six years which have elapsed. The pay-roll, some six months since (and it is a constantly increasing quantity) amounted to



A FACTORY BULLETIN BOARD.

\$27,000 per week, or about $1\frac{1}{2}$ million dollars per year. The Company's earnest advocacy of the principle that employers owe something more than wages to their employees has produced, it is safe to say, an unrivalled organization of business methods, of which the following are some of the distinctive features:—

Supervision.—The direction of the business, under the President, Vice-President, and General Manager, is by a system of Committees, including Office, Factory (which takes the place of a superintendent), Cabinet, &c. Individual responsibility is insisted upon, and every man encouraged to present his own ideas; and, so far as can be, he is permitted to work them out.

Consultation.—Meetings of officers, foremen, and assistants are frequently held for consultation upon the best methods of conducting the general business, and the details of the various divisions. So successful is this idea, that the operation of the many departments has become largely automatic. The result is that the highest officers are relieved of details, and are thus given opportunity for the study of business extension, and the best forms of manufacturing. At the same time, the good will and full effort of all the employees have been obtained. Other features of the system relate to the economical and easy tracing of stock in the factory by colour systems, use of monitor-boards instead of unwieldy records, definite relations of departments and plants for communication among them.

Suggestions.—To encourage thoughtfulness on the part of all employees, prizes amounting to \$690 are awarded every six months to the



TWO VIEWS IN THE MANUFACTURING DEPARTMENTS.

NATIONAL CASH REGISTER CO.

fifty persons making the best suggestions regarding the conduct of the business or improvement in the manufacture of the product. These suggestions number from 2000 to 3000 a year, a large proportion of which are of sufficient value to be adopted for use in the business.

The distribution of these prizes is made a gala occasion for the entire factory and office force. In addition to the prizes to people in the office and factory, monthly prizes are offered to the Company's salesmen who show the best net results in their business.

In order to encourage a proper *esprit de corps*, regular grading of departments is followed. The departments in office and factory that have the best record each month receive the banner for the



FACTORY COMMITTEE.

succeeding month; and those showing the most successful work for the year are rewarded by a day's vacation, with a trip to some large city, and all expenses paid.

Comfort for All.—Free shower-baths are provided; and all are allowed twenty minutes of the Company's time each week for bathing. The men receive ten hours' pay for nine-and-a-half hours' work; and the women ten hours' pay for eight hours' work. Absolute cleanliness prevails; a force of janitors being constantly occupied in keeping windows, floors, and machinery perfectly clean. Large windows admit abundance of light; and by a careful system of ventilation, the air is

kept pure. Bicycle storage racks and compressed air for the inflation of tyres are conveniences provided for all. A fire-brigade, regularly drilled, and hose-stations distributed in many places throughout the buildings, ensure protection against fire. An evening lunch is provided for those compelled by any cause to work overtime.

Education.—A carefully selected library of 600 volumes and 50 periodicals is at the command of all employees. A reading-room is provided; and for their convenience books are brought directly to them in the factory by means of a travelling library. Flowers and palms are tastefully distributed in the various departments. Ample lawns, beautifully laid out with masses of shrubbery and blooming plants, surround the buildings. Frequent entertainments are planned for the benefit of employees, in which the ablest speakers of the country participate.

Young Women's Advantages.—The young women (of whom there are 300) enjoy the same general privileges as the men. Baths, toilet-rooms, and clean white aprons are furnished them by the Company. Ten minutes' recess is given morning and afternoon; and many other thoughtful arrangements have been made for their convenience and comfort. Among other things, they start work an hour after the men, and leave ten minutes before them. Cooking, sewing, and the household arts are taught to all who desire

it (in a building especially provided), by a competent instructor, paid by the Company. An attractive dining-room is located in the factory building, where warm lunch is served the women at the noon hour, each day, at the nominal charge of 1 c. (1d.) per day.

Now what response do the employees give to all this kindness and thoughtfulness. The encouragement received leads the men and women to plan for their own improvement. Thirty or more clubs, societies, and schools are now in operation in the factory and neighbourhood. These are encouraged by the Company; but



EXECUTIVE COMMITTEE.

THE NOON HOUR.

Now what response do the employees give to all this kindness and thoughtfulness. The encouragement received leads the men and women to plan for their own improvement. Thirty or more clubs, societies, and schools are now in operation in the factory and neighbourhood. These are encouraged by the Company; but



A LIBRARY ON WHEELS.



MAKING A SUGGESTION.



THE DINING-ROOM.

JOHN PHILIP SOUSA WRITING
MUSIC AT N.C.R. FACTORY.

REST ROOM.



INSPECTION ROOM.



VIEWS IN AND ABOUT "THE MODEL FACTORY OF THE WORLD."



MAIN ENTRANCE.



N.C.R. LIBRARY.

MR. HAERLEIN, LANDSCAPE
ARTIST, VISITS SOUTH PARK.

THE FACTORY LAWN.



ENTERTAINING GUESTS ON THE LAWN.

CORNER OF A BATH-
ROOM.

THE INDICATOR ROOM.



THE WOMEN'S BATH-ROOM.



FRONT LAWNS ON K STREET.

THE KINDERGARTEN AT PLAY
ON THE LAWN.

ENTRANCE TO BICYCLE HOUSE.

VIEWS IN AND ABOUT "THE MODEL FACTORY OF THE WORLD."

most of them are organized and managed by the people themselves. The influence on the neighbourhood—moral, mental, and social—is great; and beautiful homes and surroundings, and intellectual men and women, are the results. The fine intelligence and conscientiousness thus developed in the employees is brought to bear upon their work; and the advantages have a triple bearing. Skill and contentment are engendered, and cannot fail to be cultivated on the part of the workpeople; the Company benefit by their employees' skill, loyalty, and permanence of service; and the resulting constantly decreasing cost of production, and excellence of work, are the gains of the customer. Having been, having seen, and having inquired into these things, I can bear witness to the truth of them; and who can therefore wonder that I return to England with deeper convictions as to the wisdom of a prudent consideration in these directions on the part of an employer for those he employs, and for which consideration he will be amply recompensed by improved skill, fealty, watchfulness, and care? The experience of Dayton and other enlightened concerns encourages one to quote these lines from "Richard III.":

"All for our vantage. Then, in God's name, march.
True hope is swift, and flies with swallow's wings,
Kings it makes gods, and meaner creatures kings."

Act v., Sc. 2.

It was with a touch of regret, and certainly with a greatly enlightened and well-occupied mind, that I left this "spotless town" of Ohio for Cincinnati, which was the exact antithesis of Dayton in point of cleanliness.

CINCINNATI AND
GAS RAIDERS.

If Cincinnati does not strike one as being what we should call spick-and-span in its general appearance, the heartiness of its people is a full compensation. General Hickenlooper, the President of the Gas Company, is a veteran gas manager; and by him I was most cordially received, introduced to the Vice-President of the Company, and given quite a fund of information as to how the Company's business has been successfully cultivated.

Before going into details on that head, however, an aspect of American gas affairs (which is at once interesting to the outsider, but decidedly annoying to the invaded) may be alluded to. The Cincinnati Company have been threatened with severe competition by a number of capitalists, who are known in New York as professional gas raiders, and who do not confine their unacceptable attentions to that city. There are quite a number of these unworthy gentry about the States; and their mode of operation is this: They select a town where competition is thought likely to pay, and make a desperate raid on it. Public meetings are held, and good speakers are engaged to point out to the public the enormities that the existing Company have been guilty of, and what advantage would accrue to the town if a new Company were started. This is followed up by articles in the Press, and public feeling is whipped up to such an extent that the Municipality frequently have to bow to the storm raised, and grant a franchise to the invaders to open up the streets for the laying of the mains. In some cases, they are bought off before they commence operations; but more frequently a quantity of capital is sunk by the new company, and the prices of the old company are brought down until both concerns lose heavily; and then it is a question as to which will stand the loss longest. The deepest purse wins. The victorious company then buy the other company out; and the gas consumer has to pay the capitalization of both concerns. Immediately after the amalgamation, the price of gas is put up to such a figure as will pay the dividend on the inflated capital of both undertakings, the capital spent on one of which is, to a large degree, wasted. This is a deplorable state of affairs; but there it is, and it cannot be prevented under present circumstances.

General Hickenlooper has, however, by experience learnt the best and readiest methods of disposing of the raiding gentry. He was successful only just recently in staving off a threatened competition by securing the good offices of the Municipality, by making considerable reductions in the price of gas and by other means. In 1872, the Company charged \$2.75, or 11s. per 1000 cubic feet, for their gas. When the raid took place, the price was a dollar. Now it is down to 75 c., or 3s. per 1000 cubic feet, and is in the course of ten years to be reduced, by equal annual

reductions, to 2s. per 1000 cubic feet, or 50 c. Cincinnati is practically the only large town which has avoided the exertion of duplicate works, and the actual starting of a fresh company. To escape the possibility of having to face further competition at the end of ten years, the Company will naturally keep the price of gas down as low as possible.

INCREASING STOVE
OUTPUT BY SOCIETY'S
CARRYING AND
OTHER METHODS.

With regard to the steps taken to develop the business, the Cincinnati Gas Company, eight or ten years ago, commenced canvassing for stoves, and did it in a thoroughly American fashion. A lady was engaged, and she had a brougham and coachman and foot-



TOWER ELECTRIC LIGHTING EXTRAORDINARY.—DETROIT.

man in livery. With her smartly appointed equipage, she called on the residents, and explained the advantages of cooking by gas—first securing the patronage of some of the leading inhabitants, so that it becomes the fashion to use a gas-stove, and a very large proportion of the people straightway ordered stoves. The Company followed this up by continuous canvassing, and also opened a show-room, with excellent results. The people who had stoves were not left to their own devices in regard to using them; but they were taught how to secure the best results out of them. The Company found that pamphlets and circulars were of very little good; but they obtained testimonials from between 3000 and 4000



DETROIT LIGHTING—A PRIMITIVE METHOD OF SUSPENSION.

people, and published them in book form. In these various ways, they have placed 20,000 cookers among 25,000 consumers, which is a proportion and record of which any English Company would be proud.

PUBLIC LIGHTING. Two-thirds of the street lighting of Cincinnati is by electric arc lamps, and one-third by flat-flame gas-burners, which are now being supplanted by incandescents.

CHICAGO GAS. Directly I set foot in Chicago, I found I had arrived in a whirlpool of a city. Here again, under one Company, natural gas and ordinary manufactured gas are supplied. For water gas \$1 per 1000 cubic feet is charged; and it has, on an average, a thermal efficiency of 700 units per 1000 cubic feet, and is of 24-candle power. The thermal efficiency of the natural gas is placed at 1000 units, the illuminating power at 8 candles, and the price is 50 c. per 1000 cubic feet.

The natural gas travels 150 miles to Chicago; and here as elsewhere more gas of the natural order is sold than is manufactured, although about 23 million cubic feet of water gas per day is said to be distributed.

The Company woke up about three years ago to the necessity of pushing gas-stoves; and, having once been aroused, with true American audacity they determined to excel all previous efforts by any other gas company—American or otherwise. In the first year 20,000 cookers were sent out, in the second year 27,000, and

A RECORD OUTPUT in the third year 20,000—i.e., 67,000 in **OF STOVES.** three years. These are in use by ordinary consumers, not prepayment; there being very few of the latter class. This is one of the few concerns in the States that hire out stoves. They have 300,000 meters in use; so that, notwithstanding their remarkable performance in the stove business, the Company have yet a big field to till. They are still pegging away, having 20 to 30 canvassers at work, with average salaries of £2 to £3 per week, besides which they pay the stove dealers 4s. to 7s. for every stove they place. The Company advertise largely both in tramcars, on their own waggons, by means of the wide distribution of pamphlets, on their gas bills, and in newspapers.

THE CHIEF OFFICER Mr. O. D. Knapp, the General Manager **AT CHICAGO.** and Chief Engineer of the Chicago Gas Company, stands on the very top rung of the ladder of the American gas profession; and I was disappointed at missing him in Chicago. Indeed, his position in America is such that I possibly may be forgiven for saying that, if he approved of any innovation in the gas business, it would be considered safe to go "K"nap on it.

PUBLIC LIGHTING. As to the public streets the suburbs of Chicago are lighted by flat-flame gas-burners. In a few streets in the city, incandescent gas-burners are used; but the boulevards, squares, and a number of the streets are lighted by electric arc lamps from a plant owned by the city.

WHAT IS DONE IN Detroit, my next stopping place, is a **DETROIT.** bright and attractive town; and during the last ten years its population has jumped from 50,000 to 285,000. Manufactured gas is there supplied for lighting at \$1 per 1000 cubic feet, for stoves 80 c., and for power 60 c.; and for natural gas 28·18 c. is charged, with a sliding-scale.

INSTALLATIONS Mr. H. D. Wallbridge is the Company's **FOR 36s.** enterprising Engineer. He has initiated a method of fitting up houses which is quite an exceptional feature in the States. A seven-room house he fits with seven gas fixtures or fittings, and pipes all through complete, for \$9, or (say) 36s. per house. The Company lose on this; but they consider the loss is more than returned by the first year's consumption, which would never have been obtained had the gas not been laid on in the houses. Gas-stoves, too, are

GAS-STOVES AND hired on easy purchase terms; and the **NATURAL GAS.** consumption tells. The amount of gas consumed has actually doubled by this means in two years. Two years ago the make was 350 millions; to-day it is 700 millions. Upon this, no comment is needed. The proportion of water gas and coal gas used is 50 per cent. each;

the former, of which 2000 million cubic feet are consumed, is chiefly used for stoves and engines. I was told that this natural gas contains 2 per cent. of sulphur compounds, which make it very offensive in use. The Engineer maintains that, owing to this amount of sulphur compounds, no cooking-stove has been made that is suitable for properly consuming natural gas. I may remind readers that at Pittsburgh I was informed that nearly all the cooking and heating was done by natural gas; and a very interesting theory, which, by those competent to judge, is regarded as most probably explaining the difference in the component gases of the Pennsylvania (Pittsburgh, &c.) as against Ohio and Indiana (Detroit, &c.) gas wells, is that the



A MODERN PIECE OF UGLINESS.—DETROIT.

natural gas in Pennsylvania comes from the decomposition of terrestrial vegetation, from which no sulphur is given off, but in Ohio and Indiana it comes from deposit, in ages past, of marine vegetation, in which at least 2 per cent. of sulphur can be traced.

By energetically pushing the gas-stove business, Mr. Wallbridge fixed 6000 cookers last year; and he has also placed 3000 hot-plates, which are supplied *gratis* if the consumer pays for the tubing and the tap.

PUBLIC LIGHTING. As to the outdoor lighting the municipal electricity plant entirely furnishes the illumination for the streets; the lights being placed on high towers, or comparatively low posts, or suspended in other ways.



AERIAL SUSPENSION.—DETROIT.

The tall electric light towers are said to be found to be very efficient as an "incentive to astronomical observation;" but they are of little value to practical people as illuminating sources on a dark night. The Public Lighting Commission is composed of some very estimable and earnest gentlemen, who, if rumour speaks truly, will, in the course of a few years, possess experience and a worn-out plant, while the city will have achieved both distinction and liabilities for about a million dollars of lighting bonds. I give four illustrations of peculiar interest.

IN BUFFALO. With Buffalo I was most favourably impressed. It is a place replete with entertainment and interest, particularly on account of its proximity to the Niagara Falls, which supply electric power to many concerns. Here the Gas Company do not control the natural gas, which is a very awkward factor—the coal gas of 18-candle power being sold at a dollar, while the $12\frac{1}{2}$ -candle power natural gas is dispensed at $27\frac{1}{2}$ c. The Company, however, have managed to hold their own, and still sell 500 million cubic feet of gas per annum. Gas-stoves have to be lent or given free; and every possible inducement is held out to the consumers to use manufactured gas. The President of the Company is Mr. A. C. Humphreys; and if it is possible for the manufactured gas to maintain its position in face of this terrible competition, he is the man to engineer and see it through. Last year, the Company just about managed to pay their way; but the ordinary shareholders did not receive any dividend.

PUBLIC LIGHTING. Both gas and electricity are patronized for the lighting of the streets of Buffalo. There are 5752 gas-lamps in the city which are supplied with gas at \$1 per 1000 cubic feet. The consumption per lamp is 4 cubic feet per hour; and the number of hours' lighting per year is $3948\frac{1}{2}$. For lighting, extinguishing, cleaning, and keeping the lamps in repair, the Company receive 17 c. per lamp per month. The Electric Light Company supply the remainder of the city with arc lamps, for which they get \$100 each for the same number of hours' lighting per year. The arc lamps are supposed to be of 2000-candle power; but a little doubt exists on the point. No incandescents, gas or electric, are employed in the streets.

From Buffalo I visited Niagara Falls, and from there crossed into Canada. The items of interest to the "JOURNAL" readers concerning this great and promising country I will reserve for my fourth and concluding article, and say—in the words of the King of France in "All's Well that Ends Well"—

"Let us from point to point this story know,
To make the even truth in pleasure flow."

FOURTH ARTICLE.

Feb. 19, 1901.

"Hark, countrymen! either renew the fight,
Or tear the lions out of England's coat."

"First Henry VI.," Act 1., Sc. 5.

IN CANADA. In Canada, I found the same eagerness to push the consumption of gas by all companies as in the States; but there is the initial difficulty here that the towns themselves are not developing so fast.

HAMILTON. The Hamilton Gas Company supply coal gas at \$1 per 1000 cubic feet; and they have no natural gas. The coal for this Company comes from Ohio with a 53 c. (2s. 2d.) per ton duty. Their make is 90 million cubic feet; and they are obtaining an increase of 15 to 20 per cent. per annum. The gas has an illuminating power of about 20 candles. The Company have regularly four advertising spaces in the daily papers. A few slot meters have been fixed; and the city streets are lighted entirely by electric arc lamps.

TORONTO. A very fine city is Toronto, thoroughly English, and yet with a spice of Americanism about it. The gas supplied is a mixture of coal and water gas, in the proportion of 60 to 40. The illuminating power is 20 candles; and the make 838 million cubic feet. The charge for gas used to be \$1.5, or 4s. 4d., per 1000 cubic feet; now it is 90 c., or 3s. 10d. In 1878, the Company commenced to make their own stoves, but found it did not answer, and in 1892 abandoned it—leaving the manufacture to those who devote themselves to the industry. They have no coin meters.

OTTAWA. The public buildings of Ottawa are imposing; but there is not much else to be seen there. A mixture of coal and water gas is supplied at \$1.50, or 6s. to 4s. according to consumption. The Company have now an equal day and night output; and they are expecting to increase the day consumption, and to sell more in summer than in winter. They are not subject in Ottawa, or in fact anywhere in Canada, to the competition existing in the States. The sale of gas is 60 millions, with a population of 55,000; but only half the city is laid with mains. The concern is controlled by the Imperial Continental Gas Association; and I found that Mr. Corbet Woodall had paid a visit of inspection three weeks prior to my call.

PUBLIC LIGHTING. Electric arc lamps entirely illuminate the streets of Ottawa. No gas has been used in the streets for some years past; but the Gas Company are hoping to make a change in this direction in the near future.

SIR WILFRID LAURIER. Remembering my good fortune in interviewing Mr. McKinley, I called at the office of Sir Wilfrid Laurier, the Governor of Canada, and was very kindly received by him. He conversed freely and agreeably on many subjects; and expressed himself as greatly pleased at the appreciation we had shown at home of what Canada had done both as regards the Canadian contingent in South Africa and the preferential tariff question.

Montreal. Concerning Montreal, I learnt that gas is sold at from \$1.20 to \$1 per 1000 cubic feet; and then as low as 90 c. for a consumption of a million and upwards. Meter-rent is only charged in the summer time; and the Company have succeeded in placing 10,000 coin meters. The quantity of gas sold is 100 millions per annum; and the average consumption per slot meter is 12,000 cubic feet—some of them being supplied with cookers. The Company sell gas for furnace heating, for which they charge a special rate of 60 c. per 1000 cubic feet. Coal for Montreal is obtained from Cape Breton; and last

year it was purchased as low as \$1 (4s.) at the pit's mouth. Purchasers have had to pay more during the last few months; but still a wide margin exists between their prices and ours in Great Britain.

WHERE ARC LAMPS FAIL.

The streets are lighted with electric arc lamps (for which the city pay \$124.10 per lamp per annum), and partly by gas. The Company have 700 lamps. The reason of this is that the city streets are lined by many trees; and they obscure the arc lights. In such places, gas-lamps are used, fitted with ordinary flat-flame burners, consuming 5 feet per hour. Some few and more obscure streets are lighted by incandescent electric lamps. One suburb is partly lighted with gas, using Welsbach burners, of which, I think, there are about forty or fifty in use.

A LARGE COMBINE. Since my return home, I learn, through the "Morning Post" Montreal correspondent, that the largest trust ever formed in Canada is now in process of organization in that city. It is known as the Lighting and Power Company of Montreal; and it will include all the companies now supplying the city with illumination and power. These will include the Royal Electric Company, the Lachine Rapids Hydraulic and Land Company, the Chambly Manufacturing Company, and the Montreal Gas Company. The capitalization is put at £5,000,000. The Montreal Legislature will be asked to change the Act of Incorporation of the different Companies so that all the newly-acquired shares of the stock can be voted on at the next annual meeting. One who has a big interest in the new combine announces that, while there will be no immediate advance in the price of gas, the Corporation will be compelled to raise the present price of electric lighting and power. Electricity, he said, is now being supplied at Montreal at a loss, because of the strong competition among the different Companies. There is much opposition to the combination on the part of consumers; and a powerful lobby will be sent to the Provincial Legislature to try to block the scheme. The Directors, however, profess to have no fear of the failure in their enterprise.

QUEBEC.

Inquiries in Quebec elicited the information that gas is there supplied at \$1.25 for fuel purposes and at \$1.75 to \$1.25, according to consumption, for lighting. There are a few slot meters in use, but not many. The make is 50 millions per annum; and the population 65,000. The Company canvass for day consumption and advertise. The city and suburbs are lighted throughout by arc lamps. It was very delightful to be whirled about the long snow-covered streets, in a fur-rugged sleigh, with the lights from the lamps in the shop windows reflected in the dazzling snow. It must be a difficult matter to deal with the question of services for many months in the year in this land of frost and snow.

THE REMARKABLE EXPERIENCE OF BOSTON.

In Boston, both water and coal gas, in about equal proportion, is supplied at the price of \$1. Boston has had a remarkable experience in gas supply. The existing Company comprises the original Boston Gas Company, the Brookland Company, the Roxburgh Company, the St. Brixlow Company, the Dorchester Company, &c. Across the Mystic River, there is a rival, called the New England Company. The Boston Consolidated Company have 75,000 consumers out of a population of 500,000; and there are 8000 coin meters in use. The make of gas is 2500 millions. Under the old order of things, two or three companies (as in other cases) supplied the same streets.

The New England Company across the river has been formed to make gas coke and liquor by means of the Otto-Hoffmann coke-ovens.* The residual in their case is the coal gas, which is enriched until it attains 18-candle power. The enriched gas is delivered into the town; and the poor common gas—of from 4 to 9 candle power—is used under the ovens. In case this does not at any time afford sufficient heat, the service is interchangeable

* A complete description, along with 19 views and plans obtained through Mr. Richmond, of these works, is given in the "JOURNAL OF GAS LIGHTING" for March 5, pp. 616-617; March 12, pp. 679-682; March 19, pp. 749-753; March 26, pp. 820-821.

—that is to say, the 18-candle power gas can be turned on. The Company make a delivery of 6 to 10 million cubic feet per day of 18-candle power, of which the Boston Company buy the largest quantity. The Otto-Hoffmann plant is very interesting; and the New England Company's installation is certainly unique.

ALLENtown. This may be taken as a typical country manufacturing town, with a population of 20,000. They are, however, as keen in developing consumption as the larger towns; and in hotels, directories, and other places where the public eye will meet them may be found the United Gas Improvement Company's advertisements, as this is one of the gas concerns run by that ubiquitous Company.

THE MASSACHUSETTS COMMISSIONERS. Of the Massachusetts Gas and Electrical Commissioners and their objects and work, readers of the "JOURNAL" have been kept well informed; and therefore no extended reference to this useful organization is necessary here. It was of interest, however, to learn that the tribunal has now been in operation fifteen years, and practically no abuses have crept in. Their authority has never been unfairly exercised. The members are appointed by the Governor on a term of about five years of office. The Commission undoubtedly make this State the best for the gas investor, and the worst for the company promoter. Opinion in favour of such controlling bodies is luckily spreading in other States.

THE LESSON AND A HOPE. I have now almost denuded my notes of specific information; but, in addition to what I have already written, there are a few other points I wish presently to make, in order to emphasize and expand the particulars that I have already given as to the enterprise of American Gas Companies in developing the use of gas for purposes other than lighting, for it is in that direction that English Companies may extract a lesson. I have shown what New York, Chicago, Trenton, and numerous other places have done; I have spoken, and given precise figures, as to increases in stove outputs in short spaces of time such as, in comparison with the total number of consumers, the gas authorities of our own country have never dreamed of. I hope—not, I trust, in vain—that my figures will set them thinking, and inspire them to follow in the footsteps of our American friends. The stove manufacturers of America do not push the business so much as do the makers in England, although such enterprise is not welcomed in all English towns. But, as I have been able to show, the American Gas Companies themselves take up the work with enthusiasm. Their advertisements, which they issue broadcast, are to be found side by side with the stores announcements, in newspapers and directories; and generally they appeal to the public in the same way, and through the same channels, as other commercial concerns. Of course, a remarkable feature of American Gas Companies' environment is the possibility of opposition; and this spurs those in possession into exercising an amount of enterprise and determination to secure the largest custom possible in order to fortify themselves against competition. But all the same, the result and the lesson of their methods stand before us. It seems to me a pity that, with so sure a foundation as our laws give to Gas Companies, there is not more determination to make the most of their unrivalled opportunities. There can be no loss of dignity in British gas authorities taking a leaf out of the books of the American authorities in this respect; they have already done so in connection with water-gas manufacture. On the other hand, they can offer to the American authorities something in the way of improved and economical methods of coal-gas manufacture; so that there will be no indebtedness on either side.

PROTECTION *versus* DESIGN AND EFFICIENCY. With reference to the remark in the foregoing paragraph, as to the apathy of the American gas-stove makers in assisting in extending the demand for stoves, I have an impression that this is traceable to the influence of the high protective tariffs of the country, which shield them from rival imports; and I venture to say that a little more active rivalry would do them no harm. The duty on imported goods in some cases is as much as 45 per cent.; and therefore effectually prevents all outside competition. I have confidence that the construction and design and character of the English stove is such

that the manufacturers in this country have no need to fear the competition of even the improved American stoves, although we have no protective duties. The chief trade is done in a double-oven cooker, with the gas-burner underneath the baking oven—out of sight, and not readily cleaned, adjusted, or even lighted. The type of stove, in fact, is somewhat similar to those which used to be sold pretty generally in this country some fifteen years ago.

**ENGLISH COINAGE
AND WEIGHTS AND
MEASURES.**

In making comparisons, among the thoughts which crowd into my mind is this, that in the event of the issue of new coinage on the ascension of King Edward VII., we might, with advantage, approximate the English coinage to the American decimal system; and it would also be a good thing to bring our weights and measures also into line with the reasonable and simple decimal measures adopted on the Continent. It certainly does not appear that America will be long before they approximate their weights and measures to something approaching the simplicity of their coinage, as I heard continual complaints of our old-fashioned tables of weights and measures. To one anomaly in connection with weights, I referred in dealing with Pittsburgh.

**ADDITIONAL DETAILS
ON DEVELOPING CON-
SUMPTION.**

As already hinted, I have a few more details which I can impart as to how consumption—particularly day consumption—is developed in America. Almost every, if not every, Gas Company that I visited advertise largely, canvass, and instruct; and they not only do this, but after a stove is placed, they make it their business to send an efficient representative to see that it is properly used and is giving satisfaction. It has been suggested there that the Gas Companies should form a National Advertising Bureau, with the object of advertising in all the leading monthly magazines of the country, so as to reach people who do not interest themselves in the local publications. The suggestion seems to me worth following up in this country. Then in the course of my travels, I learnt that the Standard Oil Company

**A SUGGESTION FOR
BRITISH GAS COM-
PANIES.**

spent last year the large sum of £30,000 sterling in advertising and pushing the sale of vapour oil-stoves; and although they have no direct interest in the profit of the stove trade, they take a broad view of the case, and see that their profit is a continuous one, inasmuch as from them must come the supply of the oil used. I am informed that they find this policy pays. In my opinion, something of the kind might also be done by Gas Companies of Great Britain—say, by contributing to a common fund a certain agreed payment on their make, and then advertising in all the London and leading provincial papers the advantages of cooking and heating by gas according to the season. I am so sanguine of the results, that I have no hesitation in predicting that it would pay them at least twenty-fold.

**NEWSPAPER
ADVERTISING.**

The United Gas Improvement Company and their dependent undertakings with their unique newspaper advertisements, the New York Consolidated Gas Company's leaderettes, and Mr. Moses, of Trenton's resourceful enterprise as a commercial engineer, appear to me to be the pick of America's advertising ability in the gas industry. Let us take a few of the numerous examples, and we shall find their subject-matter is as varied as their sizes. The compilation of these must have been a matter of intelligent study; and I only wish I could place them all before the gas companies of this country, as I feel convinced they would cause no little astonishment, and would instigate many to action in the same direction. But to reprint them all would, I should think, simply mean the occupation of a complete number of the "JOURNAL" from cover to cover. But an indication may be given of the character of some of the advertisements of the above Company and of the concerns controlled by them, without reference to the particular station from which they emanate. In one advertisement, special inducements are offered to consumers to adopt gas-stoves, the advantages of cooking and heating are stated, and a hearty invitation is given to call at the gas offices to inspect samples of stoves. "Is your gas service satisfactory?" is the question at the head of another advertisement; and it is



308. "CITY HALL" FROM SOUTH BROAD ST. PHILA.

CITY HALL, PHILADELPHIA.

ERECTED AT A COST OF NEARLY £4,000,000 STERLING.

followed by the assuring statement that "We want it to be so, and will make it so if you will give us the opportunity." "New burners" are offered "without charge" where lights are defective; and an appeal is made to consumers to notify the Company at once, by mail or telephone, in case of trouble. By the way, it is

**COMPLAINTS BY
TELEPHONE.** the custom in this country to discon-

tenance the telephone for Gas Companies, because (I have been frequently told myself) customers would make use for it for complaints. Surely, if complaints are to be made, conveniences should be placed in the hands of the consumer to make them, with as little annoyance and delay as possible. Nearly all along the line, it seems to me the last person to be considered is the consumer. There are, of course, exceptions; but I am taking a broad and general view of gas companies' treatment of their consumers. I respectfully maintain that the time for this method of dealing with them has passed

**FURTHER ADVER-
TISING EXAMPLES.** Resuming, in another advertisement in-

formation is given as to what the Company are prepared to do *free*. Services are run free up to 50 feet; gas ranges are sold at less than cost, and set up free; Welsbach lamps are sold at from 60 c. up to \$1.20, and are installed free; and all complaints of inefficient service are promptly and effectively answered free. "Just a word about Ironing" is the title of an advertisement showing the conveniences of the gas range in this necessary branch of domestic work; and a further one informs the housewife how to keep cool—the gas-range being the principal aid to promoting that desirable condition. "The servant question" is the bold top line of an advertisement which is bound to attract the attention of the perplexed and long-suffering housewife. A whole page of one newspaper is occupied by the words "Buy a Gas-Range \$12," in bold script printing, together with the name and address of the local Company. "Use a Gas-Stove," "Hot, Sweltering Weather," "When Old Sol Beams and the Mercury Climbs, Get a Gas-Stove," "Use your Gas-Range in Winter," "Why You Should Use a Gas-Stove," "Get a Gas-Range," "Think It Over," "The Cost of a Gas-Range," "Not a Knotty Question to Solve—the Kitchen Problem," "Light a Match," "Only a Match," "A Hot Breakfast," "Don't Scold the Cook," "Preserving Time is Here," "Don't Worry," "Don't Waste Time," and "Coal is Scarce," are typical headlines of other advertisements, which are all of a class to draw attention. From the material in my possession, I could go on quoting almost *ad infinitum*; but the character of the United Gas Improvement Company's public appeals is sufficiently indicated, as is also the fact that they do not expend with a niggardly hand in their wise policy of keeping the advantages of gas prominently before the public in the many towns the gas supply of which they control.

The Mutual Gas Company have an effective assortment of readable slip advertisements for publication in newspapers. They, too, are worded and the type arranged in a way to catch the eye and to induce custom. Ranges are supplied and fixed complete for \$6. The Consolidated (New York) Company's advertisement in the evening papers offers ranges from \$3 rental a year, including repair; the announcement which I have before me being prominently headed "Good Cooks prefer Gas-Ranges," and the reasons why they do so are stated. Ranges on the same terms are offered by the Standard Company in similar advertisements. The Newark Gas Company have an advertisement headed with the one word "Gas" in type fully an inch deep; and many advantages of gas are clearly set forth in the succeeding matter. The Pensacola Gas Company go in for magnificent advertisements some 13 in. by 9 in., which cannot fail to appeal to the housewife, and in which they offer to set ranges on trial, or supply them for \$13, connected free.

I think I have now given a plain idea of the extensive manner in which the American Gas Companies advertise in their ordinary local papers; but the advertisements I have mentioned do not by any means exhaust the mass of material I have by me. Nor are the Companies mentioned here the only ones who advertise; this plan of inviting and courting business is general among the Companies of the States and Canada. It is regarded as an essential to the development of a Gas Company's business just as much as of the store keeper's. And it pays; or we may be sure our cute American friends would not persist in it. Indeed with Hotspur they consider



A FAVOURITE ROUTE FROM BOSTON TO NEW YORK.

[BY RAIL AND STEAMER.]

"These things are the very life-blood, of our enterprise."

* * * * *

"Give us bold advertisement, to see how fortune is dispos'd to us."

"First Henry IV.," Act iv., Sc. 1.

SUPPLEMENTARY
METHODS OF ADVER-
TISING.

But at advertising, the Companies do not stop. Most of them circulate, with generous hand, a supply of literature to keep themselves ever-present in the minds of householders; and the days of competition, real and earnest, that have set in in almost every town in England will demand from the Gas Companies here the same unceasing vigilance to keep themselves well to the fore in order to retain what they have secured and to net more. From the United Gas Improvement Company, I received an excellent collection of pamphlets, leaflets, circulars, and almanacs. The last-mentioned are particularly pretty in design, and beautifully coloured and finished. The base of one which I have represents a gas-range, surmounted by a chubby boy in the garb of a cook; on the side of the range is affixed the leaves of the calendar, each of which contains the dates of a month, and bears an appropriate reference to gas ranges, fires, or burners. At the foot of the range appears the words "Compliments, the United Gas Improvement Company"—and not in a form offensive to the eye. These calendars commend themselves to me as a handy method of keeping gas and its uses perpetually under the eye of the rulers of domestic affairs. Of circulars making offers, and leaflets and pamphlets giving information, I have numerous examples from many sources. Most of them are tastefully got up, and contain sound advice, clearly expressed, together with full particulars concerning terms for stoves and other appliances, all of which are illustrated in many of the copies. Presumably with an eye to the future, the United Gas Improvement Company send out a little booklet containing "Mother Goose Melodies," into which are cleverly introduced allusions to gas and gas cooking, which will make a wholesome impression on the minds of the youngsters into whose hands they fall. Three pamphlets I have reserved from my pile for special mention as they have particularly taken my fancy. While they serve their advertising object, they are got up in such a style, and contain so much that the consumer will find useful, that unrequested all but the absolutely negligent will preserve them for future reference. One is issued by the Minneapolis Gaslight Company, and is entitled "A Handbook for Gas Consumers;" the second is distributed by the Consolidated Gas Company, and carries the title "Some Hints on the Economical Use of Gas;" and the third is circulated by the United Gas Improvement Company, and is faced by the words "Pointers for Gas Consumers." An allusion to the first will cover the three. In compiling this pamphlet, the author has endeavoured to comprehend as plainly as possible the more important facts relating to the use of gas, in the hope that the reader may receive essential knowledge and that causes for complaint may be entirely removed. The author fully recognizes (and this is a point that many of our English Companies do not apparently recognize) that the proper use of gas is a matter of education; and in this sixteen-page *brochure*, he packs quite a bulk of information. Starting with some wise advice about the piping of houses, the gas fixtures, globes and burners, he proceeds to show by illustration the perfect and imperfect forms of flame. Words of caution succeed; and an abundance of salutary information is imparted about meters and how to read them, which is calculated to promote greater confidence in those much-maligned arbiters of what is right between supplier and consumer. The subjects of gas cooking and heating are also lucidly treated; and the little book winds up with a list of rules for the consumer, which, if observed, cannot fail to protect him from harm. Some of the gas-stove makers also issue pamphlets; but those which came into my hands are not of such great merit as those issued by the Companies. Of course, I know quite well a number of

Corporations and Gas Companies issue pamphlets, and do push the business in England. But what I wish to impress upon my friends at home is that this is the exception and not the rule; whereas in America it is the rule and not the exception to cater eagerly and extensively for day consumption.

LECTURES AND FEES. While so much is done to secure extended business through the medium of publications of various kinds, the value of cooking lectures is fully recognized; and parsimony in making the arrangements is an unknown quantity. Accomplished lecturers, who are paid good terms, are engaged, good and comfortable halls are hired for the purpose, and in fact every inducement is put forward to attract. I learnt that the terms of one lady lecturer was \$50 per week and expenses, which consist of about \$2 personal expenses per day, and \$3 per day cooking expenses, and \$3½ to \$5 for the maid.



GAS COMPANIES' LITERATURE AND ADVERTISEMENTS COLLECTED
ON MY JOURNEY.

The New York Gas Company have paid \$75 per lecture for odd lectures, or \$50 for a series of two lectures per week for four weeks. The Company take a Theatre or Opera House and advertise very largely, with the result that they fill the place with the best people in New York. They spend the large sum of \$25,000 (£5000) per annum for newspaper work, subsidize schools of cookery, and generally do everything they can to push the trade; and they have their reward.

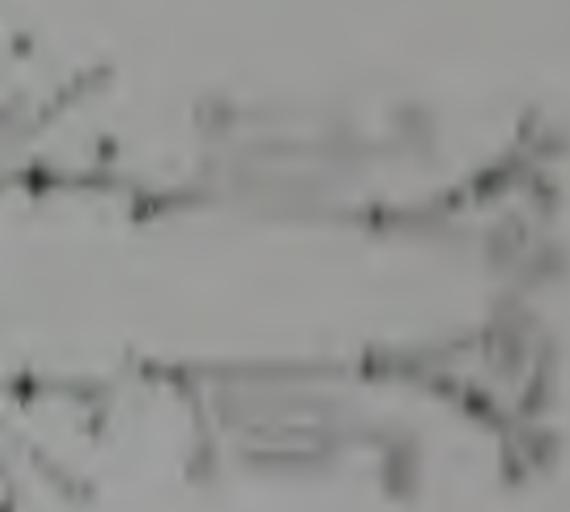
FINALLY. And now, my self-imposed task is finished. Although it has absorbed some little time and involved labour in bringing the mass of notes I made into something like presentable shape, the work has not been without interest and pleasure. My thanks are due to the many friends from whom information has been so readily obtained, and also to the Editor and Staff of the "JOURNAL" for the assistance they have rendered me in every possible way. I may say, in passing, if the readers of the "JOURNAL" in this country saw the interest with which the records of the British gas industry are followed, it would undoubtedly be a source of gratification to them. Our American friends readily acknowledge they have many things to learn from us; and surely we in our turn can with repentant candour acknowledge their superiority in the directions I have indicated. If what I have written serves to stimulate fresh activity in the field of the gas business in which I believe are set the roots of the still greater development of the home gas industry, I shall be satisfied, even though the stimulation be of moderate

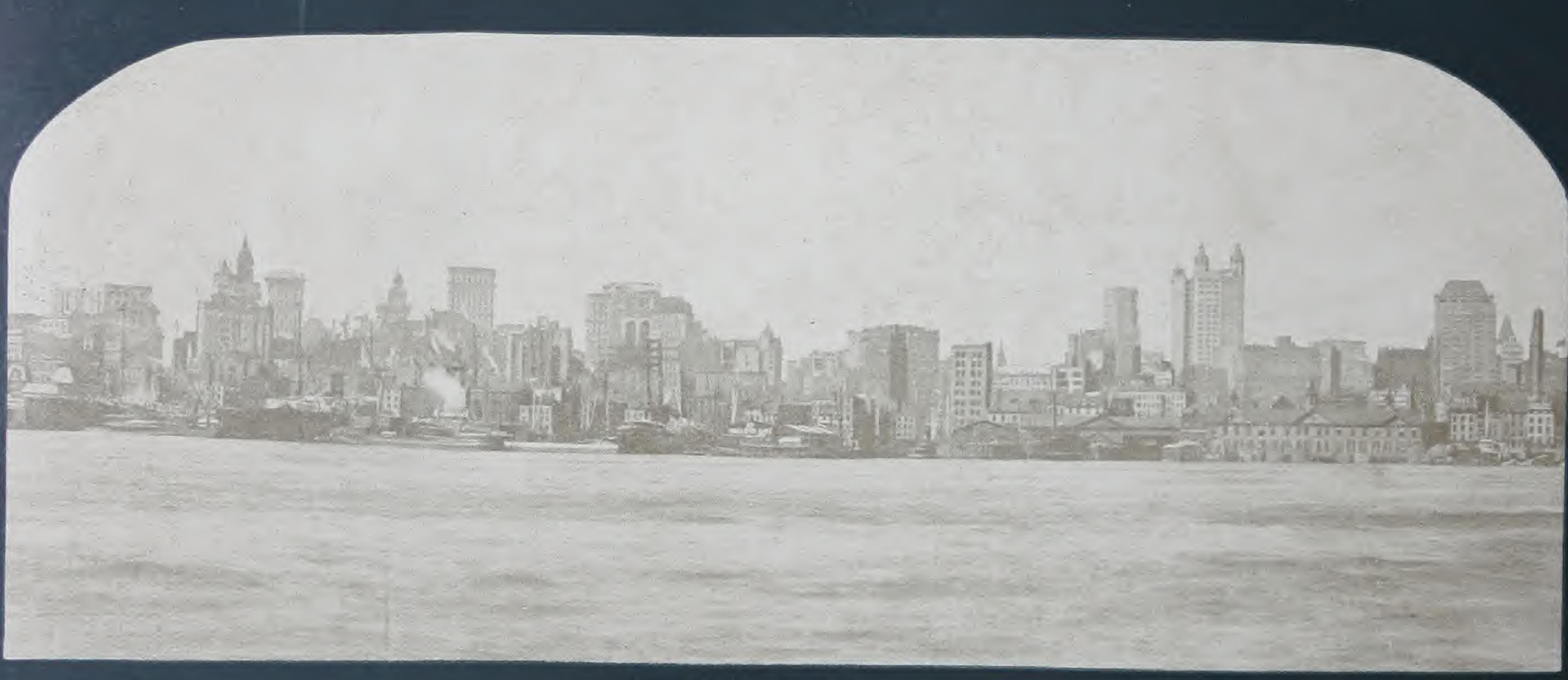
degree. I cannot help feeling that the high-water mark of the gas-lighting business has been nearly reached. Progress will be made by the aid of prepayment meters and incandescent gas lighting; but that progress, I fear, will be to a great extent counterbalanced by the inroads of electric lighting, its expensiveness notwithstanding. Therefore, in my humble judgment, it is to the use of gas for other purposes that we must turn for any large accretion of gas consumption; this has been recognized in America. If my belief is right—aye, and even if it be wrong—a trial of the methods which have been found so fruitful in America should be made. I feel convinced that out of them good would come. Shall I watch in vain for quickened life on this most promising side of the British gas industry? I trust not. May I conclude with Shakespeare's exhortation in "Henry VI."—

"Defer no time, delays
Have dangerous ends."



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